February, 1929

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Vol. XL No. 2

FEB 7 1929

The American City

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(see article on page 145)

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The American City

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See page preceding back cover

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During February we hope you will remember to mention THE AMERICAN CITY

Additional Highways, Rather Than Excessive Widening of Existing Roads, Advocated for Traffic Relief

IN the opinion of J. Gordon McKay, Director of the Cleveland Highway Research Bureau, based on an analysis of the traffic use of several state and regional highway systems during the last ten years, the provision of new two- or four-lane arterial highways is a more satisfactory solution for efficient traffic distribution, primarily in the urban regional traffic zones, and relief for traffic congestion, than the widening of the surface in excess of four free traffic lanes. A two- or four-lane surface is defined as that part of the total surface width used for the free movement of traffic, exclusive of parking space or street traction right-of-way.

In a paper before the American Road Builders' Convention, in Cleveland last month, Mr. McKay expressed the opinion also that the traffic volume on state highway systems, except in the few regional areas, will not require the construction of paved surfaces of more than 20 feet for the movement of traffic. On the 11,000 miles of the Ohio State Highway System only 131 miles, 1.2 per cent of the total mileage, carried 2,500 or more vehicles per day in 1925. Practically all of this mileage is located in the regional traffic areas of the state. Mr. McKay's corollary to this principle is that highway right-of-way in excess of approximately 60 feet on a large mileage of state highways is unwarranted, except in the regional traffic areas. Building setback lines can be established to preserve highway right-of-way for future acquisition when necessary.

Looking to the Future in Purchased-Power Contracts

A RECOMMENDATION in the annual message of Mayor Frank F. Gibney, of Madison, N. J., is worthy of careful consideration on the part of officials in cities that have contracted or are considering contracting for the purchase of wholesale electric power for municipal distribution, at least in such of these cities as are wise enough to retain an existing municipal generating plant as a precaution, rather than yield to tempting offers, based in the last analysis on the potential value of such a plant to the city, as a possible competitor.

Madison owns a generating plant, but merely holds it in reserve, having ceased production five years ago when a favorable contract for wholesale power was entered into with a power company. The contract has been renewed for a second five years, and is subject to renewal again for a like period before a new agreement is required. It has been profitable to the city, but Mayor Gibney looks to the future, and desires the city to have something substantial to bargain with, saying:

"From the profits of our water and light department, we should set aside each year a sum sufficient, when invested by our sinking-fund commission, to give us a nucleus for the rehabilitation of our municipal plant if upon the expiration of our present contract we are unable to enter into, or obtain, an equally satisfactory contract for the supplying of current from the present company, or its successors. We would not have our citizens believe that we question the practicability or success of the present agreement, as evidenced by the splendid financial returns; however, ten years from now, with an available surplus, set aside for this purpose, we should be in a stronger position to enter into negotiations, and obtain more advantageous terms."

Items and Abstracts *for* MAYORS AND CITY MANAGERS

The second of the series of open letters which "HINTS AND POINTERS" is writing for THE AMERICAN CITY, addressed to the MAYOR AND COUNCIL EVERYTOWN, U. S. A. appears on page 110 of this issue. City, town and village officials everywhere will find these monthly letters worth reading, and of practical value in their efforts to raise the standards of municipal administration in the communities which they serve.

Cincinnati Uses Radio for Talks on City Government

CONSIDERABLE interest is being aroused, not only locally, but in other cities, by the series of educational radio addresses on various phases of the municipal government of Cincinnati, being offered over Station WLW.

These talks, which were instituted last fall and are to continue, at the rate of one each Monday evening, until the end of May, were conceived by Colonel C. O. Sherrill, City Manager, and his staff. The department heads in most instances are giving the talks. Although based, of course, on the system prevailing in Cincinnati, these municipal government discussions offer enough basic subject matter to be of real value to any city officials listening to them.

Each week, a large number of requests are received at the City Manager's office, for copies of the talks which have been given. Such requests have come from all sections of the country and also from Canada. In some instances, City Council meetings have been moved to Monday night so that city officials may listen in.

Colonel Sherrill opened this radio series last September with a general address telling of the purpose behind the movement and mentioning some of the subjects and future speakers. Practically every important angle of municipal governmental work has been, or will be, treated. The following titles are typical: Cincinnati's Water System; Traffic Regulations; Public Health a Public Business; History of the Cincinnati Police Force; Public Recreation Resources and Their Use in Cincinnati; Cincinnati's Municipal Airport; The City's Street Paving Practices; Our Fire Department; The Official City Plan of Cincinnati; Municipal Accounting as Practiced by the City Government; The City Clerk's Office and the Public; The Sewer System of Cincinnati; Zoning; The Park System of the City; Developments Under the Cincinnati City Plan.

Louisville Now Offers Municipal Radio Talks

A SERIES of weekly educational addresses entitled "Municipal Ideals," and similar to those offered in Cincinnati,* is being broadcast over WHAS, of Louisville, Ky., under the direction of Mayor William B. Harrison.

One of these talks is presented each Friday night at 9:30 o'clock, and the series is to extend over a period of 15 weeks. Some subject of municipal administration that is of concern to city officials everywhere, is discussed each time by a department head or a special speaker who has made a study of municipal government. All addresses are limited to 800 words, to prevent the hearers from becoming tired.

Louisville municipal officials are not extolling particular departmental systems in these addresses, but are attempting to advise the public of their aims and accomplishments. They also are interested in receiving suggestions for improving their work, from municipal officials of neighboring communities who may listen in on these discussions.

Among the subjects being presented are: The Grade-Crossing Problem; Building a Sewer System; The Regulation of Traffic; The Taxpayer's Dollar; Keeping the City Clean; Municipal Planning and Zoning; The City and the Utilities; The Municipal Airport; Parks and Playgrounds; The City Hospital; The Smoke Nuisance; and Public Health.

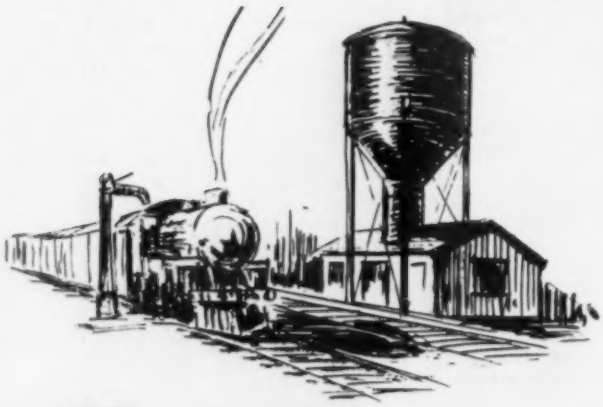
* See item immediately preceding.

By-Pass Highways

IT is sometimes difficult for local communities to reconcile themselves to the highway's being routed around their community instead of through the main street, but when roads are built for through traffic, the only sound policy is to build them in the most economic locations for the users as a whole.

As a matter of fact, by-passing centers of population and thus reducing the traffic congestion is a real benefit to the community, and this fact is becoming very generally recognized.

A Tank Town has a new meaning



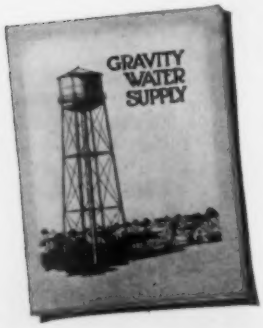
"TANK TOWN" originally meant a town at which the tank was the only reason for stopping a train. Later, it became generally used as a slur on the size or importance of any community.

But "tank town" has another and distinctly different meaning. A town in which an elevated tank is an essential part of the water-supply system shows evidence of good engineering design and a progressive spirit. Water storage in Horton Tanks means economy in first cost and operating cost and better service for all water consumers.

Tanks are not limited in their application to small towns. For instance, 1,000,000 gallon capacity Horton elevated tanks are in service in Kenmore, N. Y. with a population of 7,000 and Springfield, Illinois with 65,000. Tanks of 1,500,000 gallon capacity are located in Royal Oak, Michigan with less than 7,000 population and Detroit (several) where the population is 1,250,000. A 2,000,000 gallon tank serves the city of Charleston, South Carolina where the population is 75,000.

Ask our nearest office for details of standard tank sizes, cost estimates, and typical examples of cities in which Horton Tanks have demonstrated their value.

This 1½-million-gallon Horton elevated tank located at Royal Oak is part of the Greater Detroit water project.



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Items and Abstracts on WATER AND SEWERAGE

Chlorine and Sewage Odors

EVIDENCE is accumulating to indicate that the use of chlorine is quite helpful for elimination of odors from sewage and sewage treatment works. The first issue of the official publication of the Federation of Sewage Works Associations contains papers which describe successful use of chlorine for odor control in Texas, California, and Bath, England. Similar results have been reported from New Jersey, Kansas, Ohio, and Schenectady, N. Y. For several years chlorine has been used at Leipsic, Germany, for control of odors from sewage at the treatment works and from the Luppe and Elster Rivers below that city.

This simple means for control of odors will be of great value for many sewage treatment works now suffering from the plague of odors. Nothing condemns sewage treatment works so quickly for the average citizen as putrefactive odors, even though localized and not intense enough to be classed as a public nuisance. The courts have frequently recognized the liability of cities for damages to adjoining property by odors from sewage works. A recent decision against the city of Marceline, Mo., is quoted in U. S. Public Health Reports for August 10, 1928.

Sluggish flow of strong sewage, high in sulphates, through large combined sewers, practically always results in hydrogen sulphide formation, accompanied by obnoxious odors, and in some cases by sewer disintegration by the oxidation of hydrogen sulphide to sulphuric acid. Chlorine applied at the source of such sewers will, in many cases, retard decomposition sufficiently to prevent odors. An interesting investigation of the chlorination of sewage to prevent sewer corrosion is now under way at the Orange County Outfall Sewer, Santa Ana, Calif.

Apparently the only problems in this development are those of cost, and the effect of partial sterilization on processes of sewage treatment. If, in all cases, it were necessary to apply chlorine until residual chlorine is present, the procedure would be prohibitively expensive. Fortunately, experience indicates that partial saturation with chlorine may be sufficient, in most instances, to prevent odors, and yet not harmful to biological processes of sewage treatment.

The Effects of Hardness in Water

THE effects of hardness in water are many and varied. The most important from the standpoint of the domestic consumer is the waste of soap. The theoretical loss is about 1/20-pound of soap per 1,000 gallons for every part per million of hardness. Laundry experience indicates a loss of about 1/10-pound per 1,000 gallons. A ton of soap is wasted every day in a community of 40,000 people using a water of 300 parts per million of hardness. Most authorities state that the saving in soap alone is greater than the cost of municipal water softening. Thus, at Lansing, Mich., it is estimated that with a hardness of 380 parts per million, the annual soap loss is $134,000, while the cost of softening is $103,300, and at Madison, Wis., the soap waste is estimated at $67,890 per annum and the cost of softening only $38,225.

The average per capita use of water for washing is usually estimated at 1 gallon per capita per day, or less than 1 per cent of the total water supplied. The value of soft water in laundering can therefore be readily appreciated. It is probable that most laundries, particularly those of appreciable size, employ softening where the community supply is hard. In addition to the economy effected, difficulties due to stains by the insoluble soaps formed, which are not easily removed from the fabric, are avoided. It is reported that clothes washed in soft water have an increased life of 25 to 100 per cent.

Another field in which savings that may be effected by water softening are very great, is in boiler practice. In this case the effect on hardness is to cause increased fuel consumption by the formation of scale on the heating surface of the boiler. Permanent hardness enters into the problem, as the concentration increases to such an extent by the continual addition of fresh water that the solubility of these salts is far exceeded. A conservative estimate of the loss of fuel is 10 per cent for each 1/16-inch of scale. Railroads have found water treatment an important means of reducing operating costs. Approximately 1,000 water softeners are now operated by the railroads of the United States, removing 100,000,000 pounds of scale annually at a saving of about $13,000,000 per year.

There are also serious objections to the use of hard water in various industrial processes. Thus, hard water causes loss of dyes in the textile industry, waste of tannin and other chemicals in tanning operations, toughening of canned vegetables, and increased use of size in paper manufacture. It also gives rise to unsightly cores in artificial ice cakes and introduces complications in the scouring of textile fibres.

Abstract of a paper by Rudolph E. Thompson, Assistant Chemist and Bacteriologist, Filtration Plant, Toronto, Ont., presented before the Canadian Section of the American Water Works Association.

Sedimentation Tanks in Sewage Treatment

IN settling sewage, it should be discharged from the tanks, if possible, before it has a chance to become septic. Therefore, contact with decomposing sludge or a long period of detention in the tank is generally to be avoided. The septic tank, consequently, has given way to the Imhoff tank, and more recently the plain sedimentation tank with mechanism for the prompt removal of the sludge has come into favor. Plain sedimentation tanks with hopper bottoms are in use in one-half of the Des Plaines River works at Chicago, and at the South Side plant in Houston; Imhoff tanks at the Calumet Works for pre-settling and at the West Side Works, Chicago, and at Pomona, Calif.; and tanks with the mechanical removal of sludge at the North Side works and West Side works, Chicago, at Antigo, Wis., Milwaukee, Wis., Lodi and Pomona, Calif., Harbor City and Grand Canyon, for final settling, and at the Chicago North Side works and the Harbor City plant for pre-settling as well. Tanks of this type are frequently called clarifiers.

The Link-Belt clarifier consists of scrapers which push the sludge to a sump at one end of a long, rectangular flat-bottomed tank. These flight conveyors are operated by endless chains on each side, passing over sprocket wheels at the end. On their return at a higher level, they may also serve to break up the scum or skim off the grease. This device is installed in the skimming tanks of the West Side Works, Chicago, and in the pre-settling tanks at Harbor City.

The Hardinge clarifier resembles the Fidler apparatus found in Germany, in which a spiral scraper rotating slowly in the bottom of the tank collects the sludge to an outlet pipe in the center. This device is to be installed at the North Side plant at Houston and at Pasadena.

The Dorr clarifier installed at the other plants and employing mechanical removal is similar to the Hardinge in that the sludge is gradually scraped to a sump or outlet at the center, but there are short scrapers set diagonally on four radial arms in place of a single spiral scraper. By a special mechanism, one or more of these arms is automatically extended and withdrawn so as to collect from the corners of a square tank.

Each of the above types of tanks has a field of usefulness: the tank with hopper bottom and the Imhoff tank where their depth is not too costly; the hopper bottom and those mechanically cleaned where the sludge can be disposed of while fresh or held to decompose in separate digestion tanks, etc. The tanks of the clarifier type appear to be especially adapted to situations where excavation is costly, to final settling in connection with activated sludge or trickling filter plants, or where removal of 40 or 50 per cent of the suspended matter is desired within relatively short periods. Sixteen separate digestion plants were installed in the United States in 1926 and 1927.

Prepared from a report on methods of sewage treatment made by the Comptroller and the Chief Engineer to the Board of Estimate and Apportionment, New York.

The water-supply statistics of 4,500 cities will be published in the 1929 Municipal Index.

The floods are coming!—

PHOTO BY NASHVILLE AERONAUTIC CORP.

THE CUMBERLAND RIVER IN FLOOD, NASHVILLE, TENN.

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THIS spring—as in all other springs—the floods will come. Rivers will overflow.—Surface water supplies will be excessively polluted.—Ground water levels will rise.—Well waters will become contaminated!

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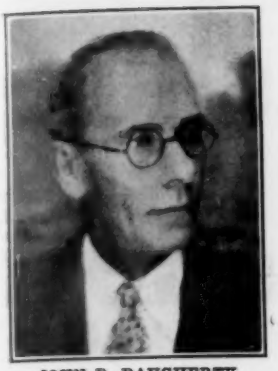

JOHN P. DAUGHERTY
Supt., Water Dept., Houston, Texas
(Appointed 1917)

ROY D. WHITACRE
Supt., Water Dept., Tucson, Ariz.
(Appointed 1923)

WILLIAM P. ANDERSON
Supt., Water Dept., Tulsa, Okla.
(Appointed 1922)

C. E. PERKINS
Supt., Bartlesville Water Co., Bartlesville, Okla.
(Appointed 1928)

C. B. BRETZ
Supt., Water Dept., Oklahoma City, Okla.
(Appointed 1920)

WHO'S WHO IN WATER SUPPLY

Installment No. 14—Portraits of Water-Works Officials in Fourteen Cities of the Southwest.

W. G. MILLER
Supt., Water Works Dept., Galveston, Texas
(Appointed 1925)

ALBERT R. DAVIS
Supt., Water Dept., Austin, Texas
(Appointed 1921)

HARRY D. SHOUP
Supt., Albuquerque Water Supply Co., Albuquerque, N. Mex.
(Appointed 1917)

WALTER F. HICKS
Supt., Water Works, Paris, Texas
(Appointed 1924)

H. J. SEAMAN
Supt., Water Dept., Laredo, Texas
(Appointed 1920)

GEORGE R. REINHARDT
Water Commissioner, Enid, Okla.
(Appointed 1927)

J. W. HEATLEY
Supt., Water Works, McAlester, Okla.
(Appointed 1928)

J. L. SWANSON
Supt., Water & Sewer Dept., Port Arthur, Texas
(Appointed 1928)

H. L. McLOW
Commsr., Light & Water Plant, Greenville, Texas
(Appointed 1917)

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ARMCO CULVERT MANUFACTURERS ASSOCIATION, Middletown, Ohio

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Use flexible pipe—it cannot break!

New, Fast Road Maintainer Developed in New Mexico

THE New Mexico State Highway Department reports that Colonel H. R. Andrew is now at work on a new highway maintainer which will reduce the cost of maintenance and speed it up considerably. A model of this new machine has been at work for some time, being tried out under natural conditions on the road. While its work is superior to that of old types which have been used, its inventor is not satisfied with the speed it made. Present-day road maintainers travel about 3 miles an hour. With the new machine it is expected to get an increase in speed so far above the average 3 miles that costs will be cut in half.

One of these new machines, which was tried out on a 90-mile test, maintained an average speed of 6 miles per hour. Besides this, the machine is adjustable in every necessary part. The blades may be moved around, the whole machine may be reversed without the necessity of turning around, and the cutting may be adjusted from ¼-inch to several inches in depth.

The machine in its modified and lighter form weighs 1,700 pounds. The original model weighed nearly twice this amount. While the first model did a better job of maintenance for New Mexico conditions, it did not have any greater speed than previous machines. Consequently, work was started to make it lighter yet just as efficient.

Wider Roads and Stronger Construction

THERE is a marked similarity between railway and highway construction. Where the railways originally had single-track lines, they now have double, four- and six-track main lines. Where they started out with comparatively light rails and light equipment, they now have heavy rails for heavy equipment. Highways have gone through the single-track and light-rail periods and, like the railroads, have gone to wider roads and to a heavier construction on the main and principal highways and many of the important feeders, but do not let us forget that the single track and light rail era of the railroad has justified and paid for itself, and likewise the narrow and light highway construction era was justified and paid for itself, for it was under the supervision and control of those trained in the highway business.

From the report of the investigation of paving and general highway conditions of the Engineering Commission of the National Paving Brick Manufacturers Association.

A Highway Clinic

IN November, 1928, a "Highway Clinic" was held at Nashville, Tenn., and was attended by some 650 state legislators, county officials, automobile club officials and other civic leaders interested in highway development. No other matter of public interest would have resulted in such an attendance from these men who came in the interest of developing the highways of the state. Colonel Harry S. Berry, Commissioner of Highways, gave an instructive talk and a report on the highway situation.

Items and Abstracts *for* ENGINEERING AND HIGHWAY DEPARTMENTS

The idea in calling this meeting was to bring before those interested in highway development various facts and figures and to call attention to the fact that development has reached such a point that either the Legislature would have to provide additional revenue or the work of the Highway Department would be seriously retarded. The specific recommendations made at this clinic to cure the highway ills in Tennessee, were:

1. To limit the state highway system to 7,500 miles, permitting the Department to concentrate its available funds upon the early completion of the more important roads in accordance with a definite plan.

2. The enactment of a 5-cent gasoline tax, one cent for paying interest on and retiring the county highway bonds, as provided by the 1927 Legislature, one cent for the maintenance and improvement of the secondary system and district roads, and the other three cents for general highway purposes.

3. State aid for a secondary system and district roads. The passage of the 5-cent gas tax will make available approximately $1,900,000 per year for county and rural roads, which would be distributed in proportion to population and geographical area.

4. The establishment of uniform County highway organizations for the efficient handling of the funds which may be allocated to the counties from the gas tax and other sources.

5. The enactment of a passenger-mile and ton-mile tax on motor buses and common carrier freight trucks, so that they may bear their just proportion of the cost of building and maintaining the highways which they now use by the payment of a nominal tax.

6. The adoption of a development program for the next four years for the completion of the state highway system and providing such funds as may be necessary to carry out the program.

7. The enactment of such laws as may be advisable for the protection of the highways built, or to be built, and for the protection and comfort of the people who use the highways.

Concrete Alleys Cured Speedily

IN Calexico, Calif., the length of time during which new concrete alleys must be out of commission has been cut in two by the use of the Hunt Process. James W. Smith, city inspector on the work in Calexico, says that this curing method has permitted use of the pavement in approximately one-half the time that water curing permits. Inspection shows that the surface of the concrete has only the few cracks that are to be expected in any curing job. The Hunt Process consists of spraying an asphalt preparation on the surface of the concrete immediately after the work of the finishers has been completed.

An Asphalt Pavement with Steel Reinforcement

A UNIQUE method of paving which is reported to have met with success in England and is now being given a trial in Paris, has been recently reported by Raymond Davis, American Consul at Paris.

Surfastal, the new pavement, as it is to be laid in Paris, will consist of a concrete foundation about 6 inches thick upon which is poured a half-inch layer of asphalt. A steel trellis or framework composed of strips 1 inch in height, ⅛-inch in thickness, and forming squares of about 5 inches in the side, is then placed upon the asphalt. To prevent displacing before completion of the surface, each square is connected by steel pins. When this trellis has been set in place, the squares are filled with asphalt and the resulting surface is thus divided into a series of small squares bounded on each side by strips of steel connected by steel pins. Since the framework is sufficiently flexible to conform to the profile of the foundation, it becomes an integral part of the wearing surface. The weights of heavy loads therefore are supported by the steel framework and distributed over a considerable surface area, and the wear on the asphalt is never more than the wear on the edge of the steel strip, thus reducing maintenance costs to a minimum.

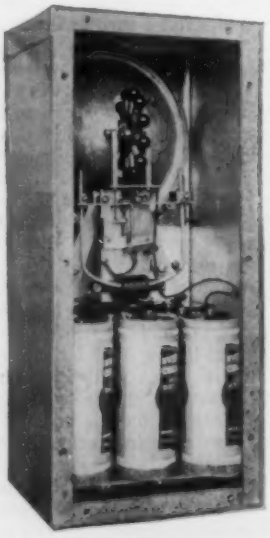
When asphalt or concrete is used in the surface layer, the material contained in each square extends under the steel framework to the contiguous squares and forms a homogeneous mass separated on the surface only by the steel strips to a depth of 1 inch.

While Surfastal could be employed for entire sections of city pavements, it would appear to be of the greatest value for certain specified uses, such as for example, joints in ordinary reinforced concrete, street-car tracks, courts of railway stations, motor-bus stations, gasoline filling stations, and even sidewalks. The company holding the patent maintains that ordinary asphalt and concrete pavements, although greatly improved in quality during recent years, are still incapable of standing up satisfactorily under certain conditions as, for example, a rapid and intense circulation, the stops and departures of heavy motor-busses, sharp turns and heavy loads.

The 1929 Municipal Index will contain many features of interest and value to City Engineers. Publication date, March 15, 1929.

STOP!

Of course you'll stop when you see the W & T *Dry Battery Warning Flasher*



The automatic lamp changer is a distinguishing feature of the W & T Dry Battery Flasher. If a lamp burns out a fresh lamp automatically takes its place.

Because of its clear, brilliant flash—

Because of its clear legend in Rayflector Buttons—

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The W & T automatic lamp changer and sturdy Eveready Dry Batteries assure continuous operation.

Batteries and lamps require changing but once in 6 months.

Yearly operating cost not over $8.00 per flasher.

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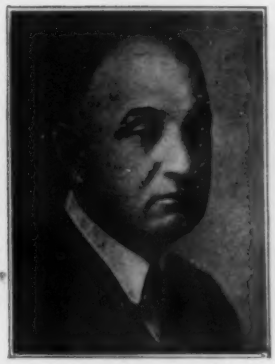
ALSO SEE OUR ADVERTISEMENT ON PAGE 8

WHO'S WHO AMONG CITY ENGINEERS

Installment No. 6—Portraits of City Engineers in Fourteen Cities of Pennsylvania

CHARLES M. REPPERT
Chief Engr., Dept. of Public Works, Pittsburgh, Pa.
(Appointed 1926)



E. CLARK COWDEN
City Engr., Harrisburg, Pa.
(Appointed 1926)

CHARLES P. SCHROEDER
Chief Engr., Bureau of Engineering, Scranton, Pa.
(Appointed 1926)

JOHN H. NEESON
Chief Engr., Bureau of Engineering, Philadelphia, Pa.
(Appointed 1928)

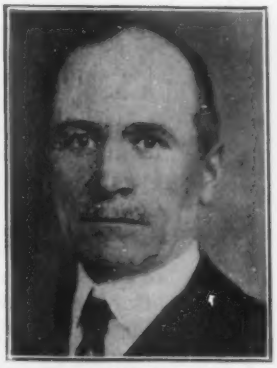
WALTER P. JOHNS
City Engr., Wilkes-Barre, Pa.
(Appointed 1927)

A. N. AITKEN
City Engr., Erie, Pa.
(Appointed 1928)

JAMES J. MALONE
City Engr., Lancaster, Pa.
(Appointed 1922)

HENRY J. BAUM
City Engr., Altoona, Pa.
(Appointed 1921)

CHAUNCEY A. REESE
City Engr., Easton, Pa.
(Appointed 1912)



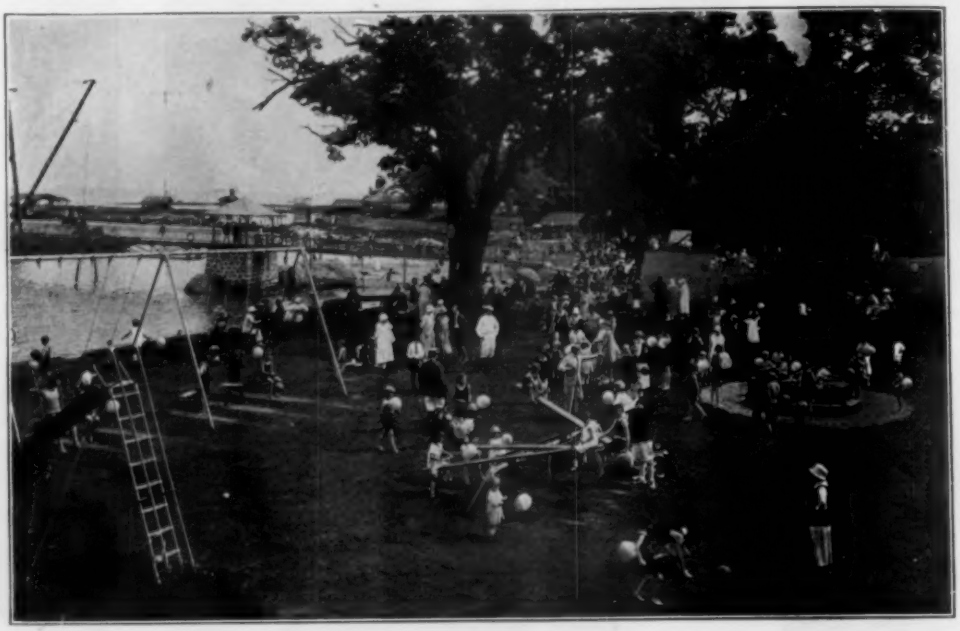
CHARLES P. SPERLING
Borough Engr., Wilkinsburg, Pa.
(Appointed 1897)

CLYDE F. W. WALLOW
City Engr., York, Pa.
(Appointed 1915)

WILBUR L. DUNN
City Engr., Uniontown, Pa.
(Appointed 1917)

LYONS MUSSINA
City Engr., Williamsport, Pa.
(Appointed 1919)

COL. LEWIS E. BURNSIDE
City Engr., Sharon, Pa.
(Appointed 1920)



More Playgrounds Fewer Accidents

KEEP the children off the streets—give them good playgrounds with plenty of fun-making, muscle-building, health-developing equipment—and yours will be a town where accidents involving children are few and far between.

For 21 years, Everwear Playground Apparatus has been recognized as the standard of quality. Built to withstand the abuse of after-hours roughnecks. Embodies every element of safety human ingenuity can devise. Playable as though the kids themselves had planned it.

Schools, institutions, cities,—the country over which have equipped their parks and playgrounds with Everwear Equipment have found it superior. Also more economical, because of its greater durability.

Send for Catalog which gives complete information. Lists 161 different models and sizes of apparatus with which to build your playgrounds.

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Items and Abstracts *for* PARK AND PLAYGROUND DEPARTMENTS

The Well-Organized Playground Within the Park

"MY plea is for the organized playground within the park—a playground adequate in size, well arranged, intelligently equipped and skilfully supervised," said George Hjelte, Superintendent of Playgrounds and Recreation, Los Angeles, Calif., in the course of a paper presented at the recent meeting of the American Institute of Park Executives. Such a playground has a number of distinct advantages, he urged, including, in enumerating them, the following:

The well-organized playground in the park yields large dividends in protecting plant life in the park. It lifts a large burden of worry from the shoulders of gardeners, unable to do their best when constantly harassed by children seeking innocent enjoyment but overrunning the planting beds. By removing children to alotted areas, other park areas are made more enjoyable to older people, and those who wish to be passive and contemplative. It protects children from danger of contact with perverted individuals who seek the more isolated spots in the park. It proves a constructive solution to the problem of neighborhood gangs, since the park playground breaks up the old gangs and forms new ones along more worth-while lines.

Should More Play Initiative Come from Children?

"THERE is a critical attitude in Europe toward the American type of playground operation, with what they speak of as its 'directed activity.' It is thought that the children have their natural restlessness increased, and run the danger of losing capacity and taste for quiet, or mental enjoyments."

This quotation is from *Leisure and Its Use*, by May and Petgen, an international study recently reviewed in this magazine. The sentiment reported was also expressed by Bertrand Russell, celebrated English philosopher, in interviews and lectures given while he was in this country lately. Mr. Russell urged "monotony and placidity" in the education of all children, adding that effort to provide variety and excitement especially to younger children is one of the worst things that can be done.

"Perhaps the greatest danger of all in supervised play," to quote two of our own students of child life (Norsworthy and Whitley, in "The Psychology of Childhood") "is that when this is true, even though the children seek the direction and guidance, one of the greatest values of play is gone. The initiative, the motive force must come from the children if their play is to be really natural. When there is too much direction, the essential character of the activity may be changed for children, and what in form is play may be work; when this happens, the value of both play and work is diminished. The very fact that the supervisor or teacher is an adult, and that the players are children, makes educative supervision very difficult. Adults must efface themselves more, they must play the role of observers more often in dealing with children both in their work and in their play if they are to reap the full benefits of their activity."

Busy Boys Versus Bad Boys

TO keep boys happily busy is to keep them out of mischief. A recent graphic illustration of this truism of public recreation may be read in the records of the Philadelphia Juvenile Court. According to an account given by the Children's Bureau, Washington, there is a large amount of delinquency among Negro boys of Philadelphia, but practically none from the Wissahickon district, where a Negro boys' club has been active for 25 years. "The club now has a membership of 1,200 and a staff of two full-time and eight part-time paid workers and four volunteers. It owns a club-house valued at $60,000, which is equipped with gymnasium, swimming pool, game rooms, and rooms for classes in cookery, carpentry, sign-painting, photography, and other subjects. It also owns a camp with accommodations for 60 boys, where vacations have to be limited to periods of one week because of the number of applicants."

Traffic Hazard Transformed Into Park Show-Place

HOW the genius of a superintendent of parks transformed a traffic hazard in Berkeley, Calif., into a park show-place is disclosed in the annual report of City Manager John N. Edy, of Berkeley, Calif. It concerns the achievement of the City Superintendent of Parks, H. A. Tibbetts, in Cragmont Rock Park.

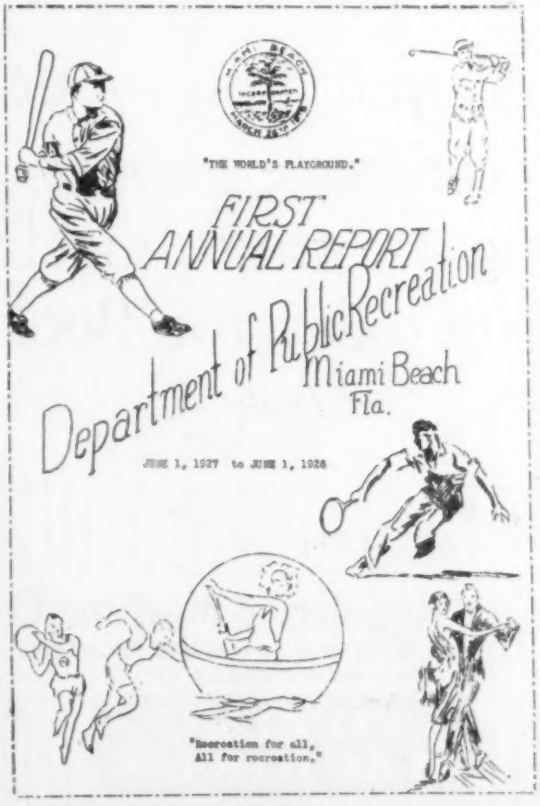
"A very attractive rock garden was designed to fill the space obtained by removing a serious traffic hazard at the head of the park drive. This has been planted with a judicious assortment of rock plants, which are making good growth. When finally established, an extremely interesting exhibit will have been added to the attractions of the park."

Seventeen Donkeys and a Cute Little Cart

ANYONE who in his early days has experienced the sheer joy of hanging onto a whimsical donkey will appreciate the worth of the gift to which the children of Houston fell heir after the Democratic National Convention. Sixteen animated, frisky reproductions of the well-known party symbol, left on the embarrassed hands of the Texas Theater Manager, Will Horwitz, have gone to live permanently in a nice, new house in the animal residence section of Hermann Park; and a track is being built so that playground children may ride to their heart's content. A seventeenth donkey, a small Sicilian beast, was the gift of Master Ben Weems, and with it was a handsome hand-made, carved, and decorated cart, also to be used by visiting children at the zoo.

Articles of Special Interest in This Issue

to those concerned with public recreation include, "Has Your City 'Undiscovered' Recreational Assets," at page 113; "Progress in Conserving the Pacific Coast Beaches for the Public," page 128; and brief items of park and playground developments at Miami, Fla., Port Arthur, Texas, and Chicago, Ill., on pages 119, 141 and 142.


"THE WORLD'S PLAYGROUND."
FIRST ANNUAL REPORT
Department of Public Recreation
Miami Beach Fla.
JUNE 1, 1927 to JUNE 1, 1928
"Recreation for all, All for recreation."

AN ATTRACTIVE RECREATION REPORT COVER
For the activities described see page 119 of this issue

. . . the unprecedented heavy vote at the last election furnished convincing proof of the speed and efficiency of voting machines in 2,000 cities and towns that employ this modern method of voting.

Let us tell you how your city or county can save money by installing voting machines. Write today for Booklet A-4

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The Community Should Recoup and Protect the Values It Creates

THE growth of the local communities, the public expenditures in improvements, the private expenditures of corporations on railroad, transit, lighting and other general services, and the expenditures of the owners of the land in local improvements are listed as important sources of suburban land values in the report on Population, Land Values and Government, a 1929 publication of the Regional Plan of New York and Its Environs. Emphasizing the right of the public to community-created values, and the importance of adequate control over new subdivision development, the report says:

"Certain of the values created by the community and public service corporations are offset against taxes and cost of services paid by the owners. Usually, however, owners of property derive considerable benefit from what is known as "unearned increment,"—that is, the increase of values toward which they have contributed neither effort nor capital. Most of the value of a site above that which represents its original land value plus the cost which successive owners and private corporations have incurred in developing and holding it is community-created value.

"It is difficult to separate the increment that is created by the community from that created directly by property owners and public utility corporations. Where it can be separated, the community should get back all it creates by means of taxation—and in many cases it does so. It is desirable, however, for the community to avoid providing more capital for local improvements than is absolutely necessary in the public interest, even when recoupment is obtained by special assessment or other taxes.

"Those who convert acreage into building lots for profit—often very great profit—should be made to make the land reasonably fit for building before it is sold for building; or should be required to put in their contracts of sale a provision that before the purchaser of a lot can permit the occupation of any house to be erected thereon it must have a proper supply of water for drinking and fire protection, an approach by a paved street, and facilities for sanitary drainage. Too frequently public authorities have to bear heavy costs in providing services that owners should be made to provide in the first stages of development."

What Should Budget Procedure Ensure to the Public?

WHEN the Philadelphia Bureau of Municipal Research recently set about investigating the failure of that city's budget procedure to produce satisfactory results, it had occasion to enumerate the major results that the public is entitled to in this regard. This it did as shown in the tabulation which follows, and which is quoted from the Bureau's publication, *Citizen's Business*, No. 862 (November 27, 1928), issued under the title "Better Budget Results and How to Get Them":

"1. A tax rate that reflects the particular year's actual needs so far as they reasonably can be forecast.

"2. A reasonably accurate picture of the expenditures which each unit of the city government is to be permitted to make during the coming year.

"3. Appropriations to the various units of the city government adequate to meet all the expenditures that they are to be permitted to make during the year.

"4. Assurance that expenditures will be made only in conformity with the appropriations and that no deficiency bills of any kind will be incurred by anyone in behalf of the city government.

"5. An accurate, current, and readily understandable accounting of the city's expenditures, showing the expenditures not only in terms of appropriations, departments, etc., but also in terms of the years to which they properly are chargeable."

Items and Abstracts *for* FINANCE AND LEGAL DEPARTMENTS

Taxation Not Defeated by Fact of Municipal Improvement Conferring Private Benefit

OBJECTION was made with regard to the assessment of property in a Florida city, and the issuance of bonds against such assessments, that the proceedings would benefit a real estate corporation that had developed a tract of land and sold off lots. Overruling the objection, in the case of City of Venice vs. State, 118 So., 308, the Florida Supreme Court quoted the following declaration made in an earlier case:

"While under the constitution 'no tax shall be levied for the benefit of any chartered company of this state,' yet if a public improvement that is afforded by tax levies does merely incidentally benefit private corporations along with other persons, the constitution is not violated in levying the tax for the public purpose, for the law contemplates that corporations shall participate in the burdens and benefits of taxation within appropriate limitations."

The Municipal Bond Market

By SANDERS SHANKS, JR., EDITOR, *The Bond Buyer*

THE municipal bond market starts the New Year on a price level well under that of a year ago. The large city which borrowed money on 4 per cent bonds at a net interest rate of 3.85 per cent in January or February, 1928, must now be prepared to issue 4¼ per cent bonds for which not much more than par will be paid. The failure of San Francisco to receive any bids on January 14 for its $41,000,000 4½ per cent Spring Valley Water Co. purchase loan illustrates the situation.

High-grade bonds are depressed because of the adverse condition of the money market. The typical bond investor is buying stocks. The banks, attracted by high call and time loan rates, have deserted the bond market for a more remunerative field of operations. The main support of bond prices is the large insurance company, trust fund or other similar type of buyer. Recent important new municipal issues are reported to have found their way eventually into the investment portfolios of the large insurance companies at prices which have allowed the underwriting bond houses little, if any, profit. This is discouraging to the bond man, and his tendency is to demand a larger spread (or profit margin) between the price he bids for a new issue and that at which he hopes to resell the bonds. From the standpoint of a borrowing municipality, this means that the market value of its bonds has declined somewhat more than the typical bond market chart indicates. This should be understood by municipal treasurers if they are to correctly judge what prices they may expect to secure on new issues.

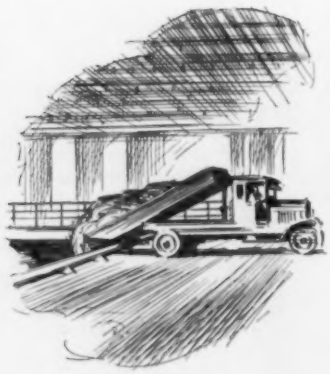
The table shows the present trend:

Amount	Issue	Rate (%)	Maturity	Basis
$3,955,000	Baltimore, Md.	4	18 2/3-Yr. Avg.	4.06
1,000,000	St. Paul, Minn.	4¼	18½-Yr. Avg.	4.16
300,000	Bridgeport, Conn.	4¼	1-10-Yr. Ser.	4.17
500,000	Pontiac, Mich., Sch. Dist.	4 & 4½	13 & 26-Yr. Avg.	4.21
575,000	Cortlandt, N. Y., Peekskill Union Free Sch. Dist.	4½	20-Yr. Avg.	4.35
270,000	Washington Co., N. Y.	4½	1-18-Yr. Ser.	4.36
320,000	Porto Rico	4½	10-25-Yr. Opt.	4.36
25,000	Madison Co., Ill., Sch. Dist. No. 127	5	13-Yr. Avg.	4.47
85,000	Fremont, Nebr.	4½	5-20-Yr. Opt.	4.49
1,950,000	Greensboro, N. C.	4½ & 5	2-11-Yr. Ser. & 25-Yr. Avg.	4.62
300,000	Mobile, Ala.	5	17¼-Yr. Avg.	4.63
700,000	Richland, Lexington & Saluda Cos., S.C.	4¾	9½-Yr. Avg.	4.71
200,000	Port Arthur, Texas, Ind. Sch. Dist.	4¾	1-40-Yr. Ser.	4.73
45,000	Hopkinsville, Ky.	5	1-15-Yr. Ser.	4.74
45,000	Niobrara Co., Wyo.	4¾	1-10-Yr. Ser.	4.75
51,500	Marion, Ohio	5	6¼-Yr. Avg.	4.75
300,000	Gretna, La.	5	18-Yr. Avg.	4.81
150,000	Klamath Falls, Ore.	5	16 1/6-Yr. Avg.	4.82
15,000	Hillsborough Co., Fla., Spec. Tax Sch. Dist. No. 9	6	15 2/3-Yr. Avg.	6.00

Could you despoil *these who have so little?*

Let us speak candidly of facts: You and I, who live in comfort and in ease, on pleasant streets, in pleasant homes, are far removed in thought and actuality from others of our fellow citizens. We have much. They have little more than basic necessities; shelter, food and air.

They *can't* be despoiled of their enjoyment of any of these—and yet they sometimes are. For when refuse disposal plants are built on city streets, they are *their* streets; and when those plants are unsanitary and pour foul vapors on the air, *they* are the ones to suffer most.



And it is all so unnecessary! Mixed garbage and refuse can be destroyed offenselessly, as the Sterling Destructor destroys it. It can be burned at high temperatures and completely oxidized, as it is in the Mutual-cell furnaces. It can be reduced to sterile gas and clean ash, as it is reduced in Bartlett-Snow installations.

If you would care to know more about our system, write for the Sterling Destructor book.

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Refuse Disposal Plants

What Should National Concerns Contribute to Local Community Welfare?

A NATION-WIDE survey to determine to what extent corporations are responsible for social welfare in cities and towns where they maintain an "absentee landlordism" over public utilities, chain stores and branch industrial plants, has been approved by the National Association of Community Chests.

"The launching of this study is the first step toward the solution of what is unquestionably the most acute problem confronting community welfare enterprises in thousands of cities and towns," according to Henry D. Sharpe, of Providence, one of the Vice-Presidents of the Association, and a prominent manufacturer.

"It is a problem having a direct influence upon the social progress throughout the nation. In our study, however, there is no implied indictment of big business. It is rather a situation of confusion, brought about by the absence of a general policy, to which we must address ourselves. The centralization of business control on such a large scale, resulting in vast systems of chain stores, branch factories and subsidiary utility companies, is a recent development, and there has not yet been time for either local communities or the businesses to adjust themselves to it.

"From many cities, we learn of corporations which have assumed social obligations and have adopted broad, generous policies; from others, we learn of companies which take no interest whatsoever in local affairs and decline to contribute to anything. In both instances the situation is harmful. It is feared that the generous corporations may at any time become irritated at the failure of the others to do their part, and, where the corporations refuse to give at all, we find discouragement and antagonism on the part of local people. Therefore, our study is to be a thoroughgoing and systematic fact-finding endeavor, looking toward the adoption of a general policy which will be fair to all businesses and to the local communities concerned. It is hoped that the result will definitely establish what the responsibility of the absentee corporate owners for local community welfare really is, and indicate some equitable policy governing the discharge of these obligations."

This plan was adopted at the annual meeting of the Directors of the Association of Community Chests in New York last month and is being supported by many nationally known corporations. The actual survey will be conducted by the National Bureau of Economic Research.

Items and Abstracts *for* CIVIC AND COMMERCIAL ORGANIZATIONS

Women's Clubs Reaffirm Billboard Policy

THE General Federation of Women's Clubs at the recent Board meeting in Washington reaffirmed its policy for the restriction of billboards to commercial districts.

The Outdoor Advertising Association urged the Board to abandon its present policy and cooperate with them in a survey of the highways of each state to "select the scenic spots from which business should be excluded." No general objection was then to be made by the Federation to billboards along non-scenic highways.

The Federation refused to give up its present policy, and maintains that the every-day, quietly lovely roadsides should be protected as well as the scenic spots. It calls attention to the fact that, by the figures given out by the Outdoor Advertising Association, elimination of their billboards from scenic spots would affect only one-half of one per cent of the rural billboards, or 5 boards out of each 1,000.

The Federation asserts that when the organized billboard industry had removed its boards from the scenic spots, there would be nothing to prevent the unorganized boards, hot dog stands, etc., from occupying these locations. Legislation, the Federation claims, is the only final solution.

Forty-seven state federations are now supporting the General Federation campaign.

MRS. W. L. LAWTON,
Chairman, Committee on Rural and Highway Advertising.

Spokane Chamber Holds Annual Banquet by Radio

ON the evening of January 16, what is believed to be the first radio banquet of any chamber of commerce in the country was held by the Spokane Chamber of Commerce from Station KHQ, and many thousands took part "via the air." It was not known how many were listening-in to the annual program, but more than 4,500 reservations were received from cards sent by the Chamber a few days previous.

Because of the increasing number of members of the Spokane organization attending the annual banquet each year, it had been found impossible to find a hall large enough. Accordingly, James A. Ford, Managing Secretary of the Spokane Chamber of Commerce, conceived the unique idea of holding the annual meeting and banquet of this organization by radio.

Instead of approximately 1,000 persons sitting down at the annual banquet as in previous years, the 1929 program was participated in by members and friends of the Spokane Chamber residing in Spokane and the Inland Empire, all of whom sat down to dinner in their own homes and received the program. Dining-rooms of friends and members of the Chamber were commandeered, and all the homes of the Inland Empire had the opportunity of being a part of the Spokane Chamber of Commerce annual dinner.

Many commercial organizations in cities and towns surrounding Spokane held their annual meetings or special meetings at the same time, in order to take advantage of this event.

Mr. Ford was master of ceremonies and was assisted by Jean Paul King, chief announcer of KHQ, during the hours of 6 to 8:30 p. m. The musical entertainment brought together a group of the finest musicians in Spokane. The addresses were short and were scattered throughout the musical program and featured the outstanding accomplishments and achievements of the Spokane Chamber during 1928, including its national publicity program, and its campaign of industrial development and agricultural promotion.

A guest speaker at the radio banquet was Don E. Gilman, Manager of the Pacific Division of the National Broadcasting Co. Time on the air for the banquet was donated by Louis Wasmer, owner of station KHQ.

A tremendous volume of both telephone and telegram acknowledgments and congratulations indicated that the program was outstanding in every respect.

W. G. OVES,
Assistant Secretary, Spokane Chamber of Commerce.

City Planning Engineer Becomes Executive of Industrial Development Organization

A. C. GODWARD, Engineer of the Minneapolis City Planning Commission, resigned January 1 to become Executive Engineer of the Minneapolis Committee, an organization of business men concerned with bringing new industries to the city and assisting present industries to expand.

For 22 years Mr. Godward has been in the employ of the city of Minneapolis, his entire professional career, except for a short time during the war, having been spent in its service. He is a graduate of the College of Civic Engineering at the University of Minnesota. He joined the municipal family in 1906 as Engineer of the Park Board, with which branch he remained until 1922, when he became Planning Engineer. He later became also Consulting Engineer of the Board of Estimate and Taxation, and of his own volition he served the City Council in a similar capacity.

Among the city planning projects for Minneapolis in which Mr. Godward has taken a leading part are a comprehensive zoning ordinance; a major street plan; plans for facilitating and financing paving and street-widening projects; a new traffic ordinance and a synchronized traffic signal system.

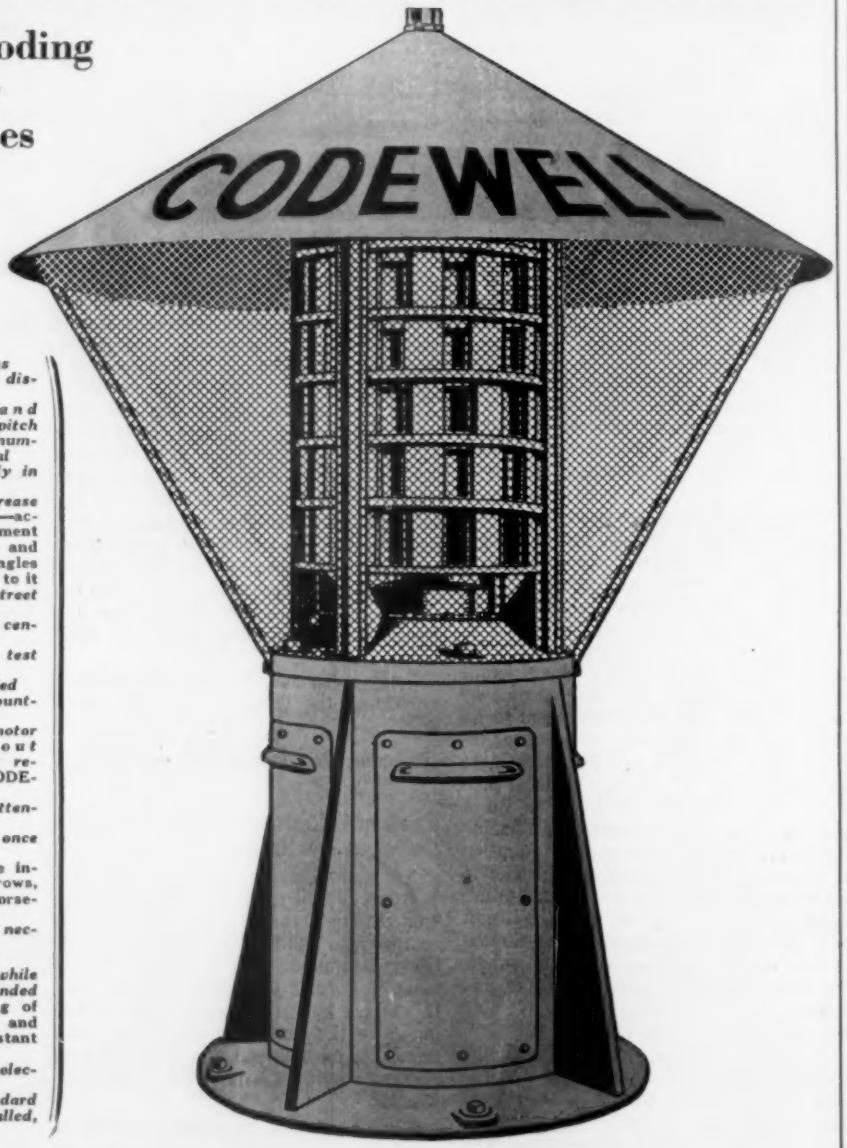
Herman E. Olson, who has had twelve years' experience in Minneapolis city departments and has served as Mr. Godward's assistant since 1922, has succeeded to the post of Planning Engineer.

GAMEWELL *presents the* 1929 CODEWELL

A Distinctive Coding Alarm for Municipalities

Salient Features of the CODEWELL

1. *Locates as well as alarms*
2. *Sounds, short, sharp and distinct code signals*
3. *Codes at the highest and farthest carrying sound pitch*
4. *Clearly separates digits, numbers and rounds of signal*
5. *Gives forth sound equally in all directions*
6. *Built vertically to increase carrying power of sound*—according to U. S. Government tests, sound is louder and travels farther at right angles to the shaft than parallel to it
7. *Can be operated from street signal station*
8. *Can be operated from a central transmitter*
9. *Can be operated from a test button*
10. *Thoroughly weatherproofed*
11. *Requires minimum of mounting space*
12. *Operated by a standard motor*
13. *Motor can be slipped out easily for inspection or repairs without taking* CODEWELL *apart*
14. *Requires minimum of attention*
15. *Lubrication needed only once a year*
16. *Built in sections*—can be increased in size as town grows, from two, three to five horsepower
17. *Easily taken apart when necessary*
18. *Motor will not overheat*
19. *Motor runs continually while code signals are being sounded*—no brakes or reversing of currents to wear, tear and burn out motor by constant stopping and starting
20. *Easily installed by local electrician*
21. *Can be used with standard box systems already installed, with only slight change.*



A SUBSTANTIAL investment for any municipality having a volunteer or part-paid fire department. It locates as well as alarms. Short, sharp and distinctive code warns you of a fire and points out its location. The cost is within reach of even the small municipality. **Write for a complete descriptive bulletin.**

THE GAMEWELL COMPANY

Newton Upper Falls, Mass.

"A BOX A BLOCK"

Items and Abstracts for DEPARTMENTS of PUBLIC SAFETY

Automobile Accidents Increased 5 Per Cent Last Year

ACCORDING to a statement released January 21, 1929, by the United States Department of Commerce, covering 78 large cities, there were in these cities 7,516 deaths from automobile accidents during the 52 weeks ending December 29, 1928, as compared with 7,084 during the corresponding period of 1927. This means a gross increase of about 6 per cent; or, if increase in population is considered, the figures indicate a recent automobile fatality rate of 22.9 per 100,000 population, as against an earlier rate of 21.9, or an increase of 5 per cent in the rate in a year.

Twenty-four of the 78 cities reported an actual decrease in the total number of deaths from automobile accidents during the last 52-week period, as compared with the previous year. They are: Boston, Mass.; Canton, Ohio; Denver, Colo.; Des Moines, Iowa; Detroit, Mich.; Duluth, Minn.; Erie, Pa.; Flint, Mich.; Grand Rapids, Mich.; Jersey City, N. J.; Kansas City, Kans.; Nashville, Tenn.; New Haven, Conn.; New York City; Newark, N. J.; Oklahoma City, Okla.; Omaha, Nebr.; Paterson, N. J.; Pittsburgh, Pa.; Tacoma, Wash.; Toledo, Ohio; Worcester, Mass.; Yonkers, N. Y.; Youngstown, Ohio.

Standard Fire-Hose Couplings Gain Favor

A CONCISE but comprehensive discussion of the progress being made in standardizing fire-hose couplings in the United States is offered in the Fire Prevention Bulletin of the Chamber of Commerce of the United States, released under date of January 17.

The article asserts that experiences of the past have proved conclusively that a city or town which has fire-hose threads that cannot be interchanged with those of its neighbors, is in constant jeopardy of heavy losses in life and property. Outlining the steps taken to eliminate the wide variations in fire-hose and hydrant coupling threads, the bulletin presents a general history of the remedial campaign up to the present time. It records that there are now 35 states engaged in such standardization work and that of the 8,000 cities and towns which have fire protection in the form of hydrants and fire-hose, more than half now use the National Standard Thread. Of the remainder, seven-eighths have threads which can be readily altered so as to be interchangeable with the standard.

The task of conversion has been successfully completed in about 30 cities of more than 100,000 population, including Boston, Fall River, Hartford, New Haven, Indianapolis, Trenton, Washington, Baltimore, Kansas City, Mo., Columbus and Youngstown, Ohio, Grand Rapids, Memphis, Dallas, Fort Worth, Seattle and Spokane. Legislative bodies in four states have passed bills making it mandatory that all public fire protection equipment shall be fitted with the National Standard 2½-inch fire-hose thread.

It is pointed out that as a result of conversion work in Fall River, fire apparatus from 24 communities were able to use their hose from the hydrants of that city during the extensive fire last February.

The Insurance Department of the National Chamber will assist any community interested in converting its threads and also in staging a demonstration of the work for the benefit of adjoining communities. Copies of this bulletin, No. 34, may be obtained by writing to the Insurance Department, Chamber of Commerce of the United States, Washington, D. C.

Fire Prevention Week Establishes New Record

FIRE losses totaling $459,000 were recorded in 226 cities of the United States during Fire Prevention Week, October 7 to 13, as compared with an average weekly loss for the preceding six months of $934,277.

These figures are taken from a survey made by Colonel Charles Edwards, Chairman of the Public Safety Committee of the Chamber of Commerce of the United States. That official also announces that 60 cities reported no fire loss during that week while 21 others reported losses of less than $35. The week preceding and that immediately following Fire Prevention Week, showed losses of $488,725 and $534,290, respectively.

It has been estimated that this reduction in weekly losses of more than 50 per cent would mean a saving of $25,000,000 to the 226 cities if maintained all year.

Fire Loss for 1927 Was Below $500,000,000

THE estimated fire loss for the United States in 1927 was below $500,000,000 for the first time in at least six years, that year's report, issued last month by the National Board of Fire Underwriters, shows.

In exact figures, the report estimates the 1927 loss from fire at $472,933,969, as compared with $561,980,751 in 1926, a reduction of close to $90,000,000. Whereas from 1922 this total has been steadily increasing, the 1927 figure is considerably below that of any year of the last six.

The total estimated loss in 1922 was $506,541,001; in 1923, $535,732,782; in 1924, $549,062,124; in 1925, $559,428,858, and in 1926, $561,980,751. The classified tabulation of the 1926 and 1927 losses, grouped under the heads of "strictly preventable causes" and "partly preventable causes," will appear in the 1929 *Municipal Index*.

Fires from every source but fireworks, gas, open lights, explosions and incendiarism, showed a substantial decrease.

The Report on Street Traffic Signs, Signals and Markings

is finally announced for publication this month by the American Engineering Council. Since the printing of the report in three installments in THE AMERICAN CITY (issues of November and December, 1928, and January, 1929), a few minor changes have been made in the document. These relate chiefly to the dimensions of signs and of lettering on signs, and it is suggested that readers of this magazine desiring to adopt the new standards secure the final report from the Council's headquarters, 26 Jackson Place, N. W., Washington, D. C.

In the section of the report relating to Signals, the only change of importance is the addition of the following at the end of the note after Recommendation 54 (a):

"In recent installations in some cities yellow is displayed before the end of the green so that the two colors show simultaneously. Experimentation is also being carried on with yellow overlapping with and continuing after green."

In the section on Street Traffic Markings, "Stop line at entrance to through traffic street" has been added to the list of approved uses of lines on pavements (Recommendation 71), and at the end of the note following that Recommendation, a sentence has been added: "A directional line shall be short and shall have an arrow head on one end to indicate direction."

Recommendation 81 (Railroad Crossing Gates) has been changed to read:

"(a) Gates protecting railroad grade crossings shall be marked with alternate stripes of black and white of 12 inches minimum width placed at an angle of 45 degrees with the horizontal when the gates stand across the highway, and sloping downward toward the center of the highway.

"(b) Both sides of the gates shall be painted alike."

The report as printed in pamphlet form contains illustrations in colors, showing shapes and lettering recommended for traffic signs, and there are also two appendices that have not been published in THE AMERICAN CITY, giving specifications for sign material, and the Bureau of Standards' specifications for paint.

New Jersey Police Academy Conducts Its First Class for Municipal Police Officers

ON January 2, the first class for municipal police officers was opened at the New Jersey Police Academy conducted by the New Jersey State Police. An intensive, practical, four-weeks' course is offered free to municipal police officers. *New Jersey Municipalities* reports the attendance of officers from the following municipalities: Boonton, Kearny, Allendale, Woodridge, Hackensack, Somerville, Ocean City, Wildwood, Midland Park, Keansburg, Hasbrouck Heights, Rutherford, Neptune Turnpike, Kenilworth, Madison, Northfield, Harrison, Park Ridge, Dunellen, Palisades Park, Metuchen, Delaware Turnpike, Bloomfield, Paterson, Glen Ridge, Stewartsville and the Union County Park Police.

6 Reasons Why

Standard Flexible Rubber Traffic Markers Have Been Adopted by More Than 1000 American Cities

1 SAFETY
2 VISIBILITY
3 EFFECTIVENESS
4 DEPENDABILITY
5 PUBLIC ACCEPTANCE
6 ECONOMY

These Six Points You Must Consider in Buying Traffic Signals

The Cheapest Traffic Accident Insurance You Can Buy

The Standard Traffic Marker Company

1711 East Second St. **WICHITA, KANSAS**

Attach COUPON to Your Letterhead and Mail

COUPON

Send me full information on your FREE TRIAL OFFER for our city

Name .....

Position .....

City ..... State.....

Patented May 1, 1928

JOSEPH A. GERK
Police Chief, St. Louis, Mo.
(Appointed 1925)

W. H. JOYNES
Fire Chief, Richmond, Va.
(Appointed 1908)

D. F. DONOVAN
Fire Chief, Kansas City, Mo.
(Appointed 1927)

CHARLES ALT
Fire Chief, St. Louis, Mo.
(Appointed 1925)

J. M. BROUGHTON
Police Chief, Portsmouth, Va.
(Appointed 1926)

WHO'S WHO IN PUBLIC SAFETY

A Series of Portraits of Fire and Police Chiefs, Which Have Appeared Monthly Since the January, 1928, Issue

HUGH RAPHAEL
Police Chief, St. Joseph, Mo.
(Appointed 1922)

J. B. GORDON
Fire Chief, Newport News, Va.
(Appointed 1920)

LEO J. URBANSKI
Fire Chief, St. Joseph, Mo.
(Appointed 1927)

W. W. CAMPBELL
Police Chief, Alexandria, Va.
(Appointed 1925)

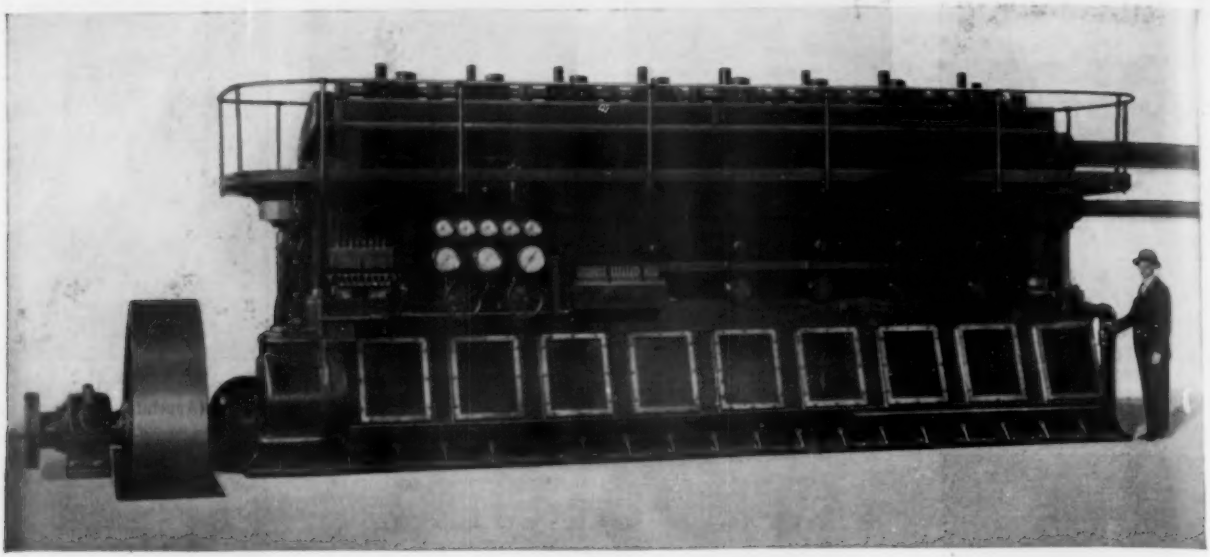
W. R. PRICE
Fire Chief, Springfield, Mo.
(Appointed 1913)

G. D. FRENCH
Fire Chief, Cape Girardeau, Mo.
(Appointed 1922)

W. P. DAVIS
Police Chief, Staunton, Va.
(Appointed 1924)

JAMES M. DUNCAN, JR.
Fire Chief, Alexandria, Va.
(Appointed 1924)

MAURICE F. GREAVER
Police Chief, Charlottesville, Va.
(Appointed 1926)



8-Cylinder McIntosh & Seymour Diesel Engine for 1600 hp. at a speed of 300 r.p.m. Similar construction with smaller and fewer cylinders and speed change makes this line very flexible for designing to meet any power need.

High speed, small space, superpower and obtainable at attractive prices

THIS very compact type of McIntosh & Seymour Diesel Engine make a fine generator driving unit for the power and lighting plant or water-works. Due to the high speed, the generator can be smaller and less expensive, and the smaller floor space and headroom effect a corresponding saving in building costs.

The fuel rate is as low and also as favorable at fractional loads as with the larger, slower McIntosh & Seymour Diesel Engines, and the generator can be paralleled perfectly with others driven by Diesel or steam engines of any speed. The dependability and general profitableness to the owner are indicated by the action of the United States Shipping Board in choosing twelve of these units for the new powerplants of its largest and fastest freighters. Previously these vessels were steam-turbine-driven, and then so slow and expensive to operate that they could not meet present-day competition.

The McIntosh & Seymour High-speed Engine will fit into almost any plant where more or more dependable and economical power is needed. The larger sizes are excellent for main generating sets in small or moderately large plants, and a very wide range of cylinder bores in from two- to ten-cylinder combinations permits an ideal unit to be built for auxiliary or standby service in any steam, diesel or hydro-electric plant.

Tell us what additional power you need, and our engineers will submit convincing evidence of the advantage of these high-speed units, or others that will best meet your requirements.

McINTOSH & SEYMOUR CORPORATION, Auburn, N. Y.

New York City	Kansas City, Mo.	Jacksonville, Fla.	San Francisco, Cal.	Houston, Tex.
149 Broadway	1016 Baltimore Ave.	412 Bisbee Bldg.	514 Matson Bldg.	2703 Esperson Bldg.

McINTOSH & SEYMOUR DIESEL ENGINES

When you write for that catalog, kindly mention THE AMERICAN CITY.

THE AMERICAN CITY should always be mentioned when writing for this material which is furnished free.

Keep your files up to date by checking over these items each month and writing for those you need.

INFORMATION FOR YOU

SLUDGE-BED GLASS-OVERS

Lord & Burnham Co., Graybar Bldg., New York, will be pleased to send complete information regarding its glass-overs for sludge beds, as well as complete descriptions of two of its installations at Boonton, N. J., and Marion, Ohio, to interested municipal officials on request.

RAW SEWAGE PUMPS

The Buffalo Steam Pump Co., Buffalo, N. Y., in its Bulletin 964-A describes Buffalo non-clogging raw sewage pumps, which can be furnished in both vertical and horizontal, submerged and non-submerged types for normal capacities from 500 to 4,800 gallons per minute.

STANDARD LIGHTS FOR AIRPORTS

The Holophane Co., 342 Madison Ave., New York, has issued an Engineering Folder describing its standard boundary and obstruction lights, made according to Department of Commerce standards, and showing photometric curves.

BRASS STREET SIGNS

Information regarding improved brass street signs, which combine artistic appearance with serviceability, and the Holophane reflector for dead ends, curves, crossings and dangerous places, may be secured from the Union Iron Products Co., East Chicago, Ind.

CULVERT PIPE

Complete information and prices on Spi-Cor cast iron spiral corrugated culvert pipe, which will produce savings in hauling, installment and replacement costs, may be secured from the American Casting Co., Birmingham, Ala.

PLAYGROUND FENCINGS

The Anchor Post Fence Co., Eastern Ave. and 35th St., Baltimore, Md., will gladly send a catalog completely describing Anchor fences for playgrounds and other municipal property.

ORNAMENTAL PLANTING

Andorra Nurseries, Inc., Chestnut Hills, Pa., specializes in ornamentals, distinctive in quality and variety, for street, park and all civic planting, on which it will be pleased to send information and prices.

STREET AND PARKING SIGNS

A complete catalog giving descriptions and prices of all Lyle street signs, school and hospital warning signs, directional signs, and highway markers, may be secured on request from the Lyle Signs Division of the Lyle Culvert and Road Equipment Co., Minneapolis, Minn.

CAST IRON WATER PIPE

The Warren Foundry & Pipe Co., 201 Devonshire St., Boston, Mass., manufactures cast iron pipe and special castings and fittings for water-works service, high-pressure fire service pipe and Warren short body specials in sizes from 2 to 60 inches, on which they will be glad to send complete information to interested officials.

REMOVABLE HEAD HYDRANTS

The catalog of the Waterous Co., St. Paul, Minn., describes the Waterous removable head fire-hydrant, on which the head can be changed or raised, the number and kind of nozzles changed or faced in any direction desired, and the grade line raised to accommodate a raise in street level without digging.

RUBBER TRAFFIC MARKERS

Sure-Stop rubber traffic markers, which can be installed in concrete, macadam or brick pavements or in gravel or dirt roads and which are constructed of a dense composition of rubber that cannot absorb water and freeze, are manufactured by the Standard Traffic Marker Co., 1711-13 E. Second St., Wichita, Kans., and described in its literature.

RAPID, PERFECT LETTERING

A copy of Catalog 6, fully illustrated and containing complete information and prices on Wrico lettering guides, which are in use by more than 5,000 city departments, may be secured by writing to E. C. Wood, Wood-Regan Instrument Co., South Orange, N. J.

NEW VIBRATING SCREEN

A vibrating screen of the unbalanced weight type in which the entire screen frame is vibrated in preference to vibrating the screen cloth only, has been announced by the Good Roads Machinery Co., Kennett Square, Pa., from which complete information and prices may be secured.

WATER-WORKS SPECIALTIES

Catalog A of the Reading Meter Repair Co., Reading, Pa., tells all about the complete line of Reading water-works specialties, such as curb boxes, meter-box covers, meter testers, melting furnaces, jointing materials and miscellaneous water-works tools.

A MECHANICAL SEWAGE GRIT CHAMBER

The Dorr Company, 247 Park Ave., New York City, has announced the Dorr Detritor, an automatic mechanically cleaned grit chamber for sewage treatment plants. Free information may be secured from F. H. Jones, Advertising Manager.

FLUSHING CITY STREETS

Detailed information and catalogs regarding street flushers which will clean your pavements at minimum expense with protection to health and comfort and keep your sewers flushed, will be sent on request by the Municipal Supply Co., South Bend, Ind.

MUNICIPAL STREET LIGHTING

The Westinghouse Electric & Mfg. Co., L. A. S. Woods, Mgr., South Bend Works, South Bend, Ind., will gladly send complete information and prices on Westinghouse equipment for lighting city streets.

PIPE AND FITTINGS

The National Cast Iron Pipe Co., C. Judson Day, Sec.-Treas., Birmingham, Ala., manufactures a complete line of cast iron bell-and-spigot water and gas pipe and fittings made by the sand cast and de Lavaud centrifugal processes, as well as 2-inch B & S cast iron service pipe and fittings with prepared joint, on which it will be glad to send complete information and prices.

NATATORIUM FILTERS

The Norwood Mfg. Co., H. W. Hosford, Mgr., Florence, Mass., tells in its catalog how free public baths and swimming pools can be kept wholesome, clean, invigorating and safe at a nominal cost through the use of the Norwood 2-unit filtration system.

LOW-PRICED EFFECTIVE FIRE PUMPS

The American Steam Pump Co., C. R. Davis, Battle Creek, Mich., will be pleased to send a copy of Bulletin 60, describing the Barton Fire Pump for attaching to the front of a truck and driven through the motor crankshaft through a patented power take-off.

FENCES FOR SCHOOLS AND PLAYGROUNDS

Complete information and prices on Cyclone fencing for factories, schools, playgrounds, and all public property may be secured on request from the Cyclone Fence Co., J. H. Kinney, General Sales Mgr., Waukegan, Ill.

REINFORCING FOR ROADS

A copy of the new Road Book may be secured from the American Steel & Wire Co., Wilmer H. Cordes, Mgr., Adv. Dept., 208 S. La Salle St., Chicago, Ill. This new book contains descriptions and specifications of American wire fabric for reinforcing concrete roads, which is made of cold-drawn steel and cut in easily handled sheets or convenient size rolls.

WATER METERS

A copy of the latest 34-page catalog of the Buffalo Meter Co., 2902 Main St., Buffalo, N. Y., telling all about Niagara and American meters for city installation, will be sent on request to this company.

ELECTRIC TRAFFIC SIGNALS

Bulletin GEA-566A of the General Electric Co., Schenectady, N. Y., completely describes Novalux electric traffic signals and the various methods of installing and operating them for all traffic control conditions.

CLAY PIPE FOR SEWERS

The Clay Products Assn., Conway Bldg., Chicago, Ill., will send complete information and prices on vitrified salt-glazed clay sewer pipe for city installations.

MUNICIPAL CASTINGS

The Wm. E. Dee Co., 80 N. La Salle St., Chicago, Ill., will be pleased to receive inquiries regarding its line of manhole, catch-basin and sewerage castings for every municipal need.

PRESSURE CONTROL FOR PUMPS

A booklet on Mercoid control, for the pressure control of pumps, supplying elevated tanks, or pumping from sewage sumps, which operates electrically without any exposed parts subject to corrosion, may be secured from the American Radiator Co., Michael L. Stiver, Advertising Division, 40 W. 40th St., New York.

EVERGREENS, TREES AND SHRUBS

The Kelsey Nursery Service, 50 Church St., New York, offers a complete line of evergreens, shade trees, shrubs, etc., which will in a few years grow into planting-size stock, as well as larger stock in all varieties for immediate planting.

CERTIFIED TAX APPRAISALS

J. M. Cleminshaw Co., Leader Bldg., Cleveland, Ohio, specialists in the revaluation of municipalities for local tax purposes, will be glad to send complete information regarding their method of conducting certified tax appraisals.

FIRE-HOSE

Complete information and prices regarding Bi-Lateral fire-hose, which will flatten on the apparatus without cracking the rubber and will never burst at fires, may be secured from Clay Baird, Bi-Lateral Fire Hose Co., 110 N. Franklin St., Chicago, Ill.

SIGNALING APPARATUS

The Thomas Smith Co., Canton, Ohio, issues a loose-leaf folder containing photographs and drawings of its line of traffic control and signaling apparatus, which it will be pleased to send to interested municipal officials on request.

HEATER FOR ASPHALT TANK CARS

George Etnyre, E. D. Etnyre & Co., Inc., Oregon, Ill., will be pleased to send complete information and prices on its asphalt tank car heater, which may be mounted on a trailer for transportation behind a truck or automobile for quickly and efficiently reducing asphalt from a solid state to pumping consistency.

AN EFFECTIVE FIRE PUMPER

Informtion and prices regarding the new pumper which has been developed by the General Manufacturing Co., 4127 Forest Park Blvd., St. Louis, Mo., may be secured by officials interested in a pump with a capacity of 500 gallons per minute.

NEW SCARIFIER FOR GASOLINE ROLLERS

The Huber Mfg. Co., A. W. Newby, Asst. Sec., Marion, Ohio, has recently brought out a scarifier for the 10-ton Huber gasoline roller, in which the cylinder is located under the deck of the roller, where it is out of the way, and pressure is applied to the scarifier bar through bell arms and levers.

To the EXECUTIVE OFFICERS of the CITIES and TOWNS of the UNITED STATES—

The growth of many municipalities is often handicapped by an inadequate or obsolete water system . . . lack of money to provide extensions to the existing water systems, and to build improved streets, modern sewers and other essentials.

Does this condition confront your community?

Is your present water supply inadequate? If not, for how long will it satisfactorily take care of your requirements?

These problems should be given immediate thought.

Perhaps there is another source of water supply which can be brought to your city's gates and delivered to your distribution system . . . at a reasonable rate?

The advantages of freedom from future cash outlays for extensions to the present water system and to keep it up to an efficient working basis . . . should interest you. And, if your city needs money for building streets, sewers or an airport . . . we will make a cash offer for the existing water system.

The many benefits of unified operation of water supply companies are the result of a comparatively recent development, but one which is spreading rapidly in many parts of the United States. It will pay Executive Officers of cities and towns to consult our engineering service department . . . on all problems relating to water supply systems.

Federal Water Service Corporation

27 William Street, New York

AN INTERESTING PLAYGROUND DEVICE

The Karymor, an interesting device for playgrounds, on which children may play ten fascinating, muscle-building games, is manufactured by R. F. Lemar & Co., 443 Thatcher Bldg., Pueblo, Colo., from whom complete information and prices may be secured.

SIMPLIFIED PUMPING

The Allis-Chalmers Mfg. Co., Milwaukee, Wis., will be glad to send a copy of its Bulletin 1632 to city officials interested in motor-driven centrifugal pumps which greatly reduce maintenance and replacement costs, as well as attendance.

MORE PLAYGROUNDS, FEWER ACCIDENTS

A catalog listing and describing 161 different models and sizes of apparatus with which to build life-saving playgrounds for your city, may be secured from the Everwear Mfg. Co., Walter B. Evans, Springfield, Ohio.

SERVICE LINE PIPE

The American Brass Co., Waterbury, Conn., will be glad to send complete information and prices regarding Anaconda-85 brass pipe, which is claimed to be the highest quality corrosion-resisting water pipe commercially obtainable for service lines.

AUTOMATIC PUMP CONTROL

Complete information regarding E. C. & M. pump control, which will automatically start and stop your pumps as the demand varies, eliminating station operators, cutting down power consumption and expensive standby equipment, and effecting other economies, may be secured from the Electric Controller & Mfg. Co., R. G. Widdows, Sales Mgr., Cleveland, Ohio.

GALVANIZED ASH CANS

Prices and particulars regarding Canco galvanized specialties, including rubbish burners, trash cans, and garbage cans, may be secured from The American Can Co., Galvanized Ware Dept., Toledo, Ohio.

A COMPLETE LIGHTING CATALOG

The Hedges-Walsh-Weidner Co., T. H. Johnson, Chattanooga, Tenn., will be pleased to send prices and a copy of its complete lighting catalog, describing lamp-posts, service-boxes and valve-boxes to city officials interested in the efficient lighting of their city streets.

TIGHT PIPE JOINTS

Information regarding Hydro-Tite, with which cast iron water-pipe joints are made strong, flexible and tight, may be secured from the Hydraulic Development Co., H. A. Hanscom, Gen. Mgr., 50 Church St., New York.

SNOW LOADERS

Snow loaders for city street cleaning and snow removal on arterial highways are made in capacities ranging from 10 to 20 cubic yards of ice and snow per minute by the Joy Mfg. Co., Franklin, Pa., from which complete information and prices may be secured.

DEPENDABLE PIPE INSTALLATIONS

The Lead Lined Iron Pipe Co., Wakefield, Mass., will be pleased to receive inquiries regarding Wakefield galvanized amalgamated lead lined iron pipe and fitttings, which are easily installed at low cost and are permanent.

SLUDGE-BED ENCLOSURES

Complete facts regarding King sludge-bed enclosures, with which evaporation is more constant and rapid regardless of weather conditions, more dryings are possible and sludge can be pumped throughout the winter, may be secured from the King Construction Co., North Tonawanda, N. Y.

LUBRICATION WITH GRAPHITE

Booklet No. C-107 which may be secured from the Joseph Dixon Crucible Co., B. L. Rowley, Adv. Dept., Jersey City, N. J., gives the results of more than a hundred years' experience in handling pure flake graphite and the various greases compounded with graphite for producing the dead-smooth bearing surfaces that are so necessary to cool running and long life of equipment.

A NEW SIX-CYLINDER ROAD ROLLER

The New Ames 10-ton, 6-cylinder road roller has many features which will be of interest to highway officials and contractors. Complete information may be secured from the Ames Iron Works, A. Bradley, Sales Engr., Oswego, N. Y.

AUTOMATIC WATER-SUPPLY PUMPS

The Byron Jackson Pump Mfg. Co., Charles E. Mowry, Sales Engr., Berkeley, Calif., will be glad to send complete information regarding Byron Jackson automatic water-supply pumps, which are especially adapted for municipal purposes and noted for long life and trouble-free operation.

WATER AND SEWAGE CHEMICALS

Prices and information regarding chemicals for water purification or for the treatment of sewage may be secured on request from N. E. Bartlett, the Pennsylvania Salt Mfg. Co., Widener Bldg., Philadelphia, Pa.

SAFETY GUARD-RAIL

A new type of guard-rail which is positive, permanent, economical and safe is described in Bulletin A-1 issued by J. H. Ramsey, 11 N. Pear St., Albany, N. Y., manufacturer of Ramsey safety guard-rail.

BOOKLETS ON LAWNS

O. M. Scott & Sons Co., Marysville, Ohio, has issued three booklets, "The Seeding and Care of Lawns," "Bent Lawns," and "Lawn Care," which it will be glad to send to interested municipal officials on request.

REPAIRING ROADS

Specifications and other particulars regarding Standard cold patch asphalt, asphalt binders, refined asphalt for sheet asphalt paving, joint fillers, paving flux, bridge asphalt and preserving oils, may be secured on request from B. L. Boye, Standard Oil Co., of New York, 26 Broadway, New York.

ECONOMICAL CULVERTS

Information regarding Toncan iron culverts, telling why they show the lowest cost per year because of their corrosion resistance, may be secured on request from the Toncan Culvert Manufacturers Assn., Massillon, Ohio.

BETTER TRUCK TIRES

Full information and prices on Goodyear truck tires with new and improved tread designs, stronger and tougher tread compounds, and extra durable body stock and structure, may be secured from the Goodyear Tire & Rubber Co., L. L. King, Adv. Mgr., Akron, Ohio.

SAND BANK AND STOCKPILE LOADERS

Haiss Model-27 loaders for heavy-duty work, and the Haiss-16, a medium-duty loader for stockpile service, as well as the complete line of loaders, portable belt conveyors and clamshell buckets made by this company, are described in the literature of the George Haiss Mfg. Co., 142nd St. and Park Ave., New York.

REPRODUCING MAPS AND PLANS

Bulletins of special interest to city engineers and tax departments, describing Lithoprints, which are ink reproductions, on any material, of tracings, maps and plans, will be sent on request by W. H. Cushman, the Lithoprint Co. of N. Y., Inc., 41-43 Warren St., New York.

PURE WATER-SUPPLIES

The Mathieson Alkali Works, Inc., J. R. Schmertz, Adv. Mgr., 250 Park Ave., New York, will gladly send complete information regarding Mathieson liquid chlorine and chlorinators for use as a sewage disinfectant or as a means of protecting water-supplies.

EXPANSION JOINTS

Complete information regarding Sealtight expansion joints may be secured from W. R. Meadows, Inc., Elgin, Ill. Inquiries regarding Sealtight rail filler, protection planks, crossing planks, bridge flooring and industrial flooring should be addressed to their agents, the Universal Asphalt Co., 5 N. La Salle St., Chicago, Ill.

ASPHALT PLANTS

Specifications and information regarding the Doorley portable and stationery asphalt plants, made in capacities of 450, 850, 1,500 and 2,000 square yards of 2-inch top per day, may be secured from W. J. Doorley, Charleroi Iron Works, Scottdale, Pa.

EXPANSION JOINTS FOR ROADS

City officials interested in improving concrete roads should write to the Philip Carey Co., Charles D. Easton, Adv. Mgr., 8 Wayne Ave., Lockland, Cincinnati, Ohio, for complete information and prices regarding Carey Elastite expansion joints.

POWER LAWN-MOWERS

Literature and prices on Red E power lawn-mowers, made by the Modern Machine Works, 186 Milwaukee St., Milwaukee, Wis., for grass plots in parks, parkways and institution grounds, in cutting capacities of 2½ to 6 acres per day, may be secured on request.

WATER-METER TESTERS

A bulletin and other information on Ford water-meter testers, as well as a copy of the complete catalog describing Ford water-meter setting and testing equipment, may be secured without obligation from T. W. McNamee, Ford Meter Box Co., Wabash, Ind.

ALUMINUM SULPHATE

Prices on aluminum sulphate or standard filter alum may be secured by those interested, from the General Chemical Co., E. P. Fisler, 40 Rector St., New York, as well as a catalog listing the products manufactured by this company.

CENTRIFUGALLY CAST PIPE

The United States Cast Iron Pipe & Foundry Co., John D. Capron, Publicity Mgr., Burlington, N. J., will gladly send information to interested city officials on de Lavaud centrifugally cast iron pipe and why it is stronger than other kinds of cast iron pipe.

SAVE FABRICATION ON THE JOB

Complete information and descriptions of Havemeyer electrically welded Barmats, which save fabrication of the mats on concrete road jobs, and Havemeyer holding devices, which support the Barmats and assure their being set in exactly the right position, may be secured by writing to The Concrete Steel Co., 42 Broadway, New York.

FIRE-HYDRANTS, GATE-VALVES, METER-BOXES

The illustrated literature of the Columbian Iron Works, Chattanooga, Tenn., describes this company's complete line of fire-hydrants, gate-valves, meter-boxes, fire-hydrant extension sections, and municipal castings of all kinds.

TECHNICAL DATA ON VALVES

The Michigan Valve & Foundry Co., Detroit, Mich., has issued a handbook of design and specifications of valves written by August Ulbert, C. E. for water-works, hydraulic and power engineers. Your personal request will bring a copy of this book without cost.

PARK BENCHES AND SWINGS

The Millersville Supply Co., N. K. Myers, Sec., Millersville, Pa., will be glad to send complete information and prices on its nine different styles of Bausman better benches and the heavy park swing, which will be of interest to park and playground superintendents.

TRAFFIC CONTROL SYSTEMS

Literature describing in detail the Harrington-Seaberg Co-ordiplex traffic control system, which mechanically regulates traffic and solves traffic control problems, no matter how complicated, may be secured from the Harrington-Seaberg Corp., S. Seaberg, Pres., Moline, Ill.

A NEW HOT-LAY ASPHALT PAVEMENT

Complete information regarding Westphalt, a true hot-lay asphalting pavement, embodying the desirable features of both the hot-lay and the cold-lay type, may be secured from the West Process Pavement Co., Inc., L. T. West, Pres., 1439 Starks Bldg., Louisville, Ky.

DISTRIBUTORS FOR TAR AND ASPHALT

The line of Champion bituminous distributors for use in the application of tar and asphalt in highway construction and maintenance, which are made in six models and operate either from a power take-off or by means of an independent power unit, is described in a booklet which may be secured from the Good Roads Machinery Co., J. Warren Kitts, Adv. Mgr., Kennett Square, Pa.

ASPHALT MIXING PLANTS

Bulletin 2D of the Barber Asphalt Co., W. F. Hartzell, Adv. Mgr., 1600 Arch St., Philadelphia, Pa., describes in detail Iroquois asphalt mixing plants, which are adapted to the production of bituminous mixtures at minimum operating cost with maximum output.

A NEW ROLLER GREENS MOWER

Complete information regarding the new Ideal roller greens mower with a high-speed 4-inch diameter cutting reel and other novel features, may be secured from the Ideal Power Lawn Mower Co., W. L. Austin, Sales Mgr., Lansing, Mich.

Will it deliver a full supply of Clear Rust-Free Water?

THAT is one of the most important questions you will have to ask yourself in ordering service pipe.

Satisfactory service and economy depend upon the ability of the pipe to withstand soil corrosion on the outside and internal corrosion from the flow of water on the inside. You can get such service from Rust-Proof Copper or its alloys—the materials that will always deliver a full supply of pure, clear water, free from rust contamination.

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Before you order service pipe read this brochure. It will be ready for distribution February 15th. Write for your free copy.

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FEBRUARY, 1929
Vol. XL, No. 2

The American City

443 Fourth Avenue
New York

50 Cents, $4 a Year

THE AMERICAN CITY advocates for municipalities and counties:

1. *City and regional planning and zoning for spacious development*
2. *Streets and roads that are well built, well lighted, well cleaned*
3. *An abundant supply of pure, soft, palatable water*
4. *Sanitary disposal of sewage and garbage*
5. *Fire and police departments properly trained and equipped*
6. *Thorough and uniform traffic control; fewer grade crossings*
7. *Plenty of parks, parkways, playgrounds, and swimming pools*
8. *Administrative efficiency and citizenship cooperation in bringing these things to pass*

Suburban Parking Stations, with Street-Car or Limited Bus Service, as Aids in Solving Parking and Traffic Problems

By LEON R. BROWN

Safety Engineer, New York State Railways, Rochester, N. Y.

A RECENT development in traffic relief has been the establishment of parking spaces located near transit facilities in the outlying districts of cities. From these stations the automobilists can reach the business districts by rail in less time than in their autos and without the attendant traffic and parking troubles. Such stations have been put in operation in a number of cities, notably Philadelphia, Akron, Poughkeepsie, and Baltimore. In all these cities parking stations are provided at the end of street-car or rapid-transit lines by the railway companies and a round-trip ticket downtown is given to the automobilists for the sum of 25 cents. This practically means that the automobilist is getting a free ride downtown and back in addition to saving time and the cost of operating his automobile. He is also relieving congestion in the downtown districts, which in itself, according to traffic experts, is of much value to the people of the community.

Encouraging Private Cars to Stay at the Outskirts

The railway companies apparently find this practice a stimulant to their business. In 1927 it was reported that 209,000 automobiles had been kept from the downtown streets in Philadelphia through parking stations established at the outskirts by the Philadelphia Rapid Transit Company, and the company had thus gained approximately 500,000 additional street-car riders, and the eleven months' figures for 1928 show over fifteen per cent increase over the same period for 1927. The maximum day at any one parking station in Philadelphia showed over 800 cars.

Parking to Aid, Not Hinder, Public Transit

In Boston two automobile parking areas on land owned by the railway have been established adjacent to rapid-transit terminals. They are leased for private operation and, while no figures regarding the use of these stations are available, there is no doubt that they are stimulating business for the company as well as helping to relieve downtown traffic congestion.

The Chicago, North Shore and Milwaukee Railroad provides free parking space, well kept and protected, at several of its suburban stations between Chicago and Milwaukee. This extra bit of service for the commuters, started in connection with the railroad's Better Business Campaign, is expected to increase passenger traffic materially.

The Northern Ohio Power and Light Company, an interurban operating between Akron and Cleveland, has inaugurated a different kind of service, although answering the same purpose. This is the operation of a ramp garage in connection with the interurban terminal at Akron, Ohio. Here automobiles are checked for 25 cents by persons who wish to continue their journey by trolley to Cleveland, Canton, or other cities to which the company operates. A uniformed attendant checks the car, removes the baggage, and brings the car to the patron upon his return to the terminal.

In Baltimore, parking spaces provided by the railway are manned by men capable of rendering any service to motorists. They sell to each motorist a parking ticket and two street-car tokens for 25 cents. This reduces the cost of 24-hour parking to the sum of 10 cents, as the tokens are worth 15 cents.

Substituting One Bus for Fifteen Automobiles

Since the establishment of parking stations at the end of car lines has been so successful, the question has come up, if the establishment of parking spaces on the outskirts of cities with a limited bus service to the downtown district would not also be successful and provide relief for downtown congestion. The single-deck bus would seat at least 25 passengers and thus eliminate about 15 automobiles from the downtown congestion. Although the busses cannot be operated as cheaply as the street cars or as rapidly as rapid-transit service, one could still be operated much more cheaply than the 15 private automobiles, and parking stations can be provided in the outlying districts at much less cost than in the downtown districts and their number and size would be less restricted. While there are no known instances

BROAD STREET BRIDGE OVER THE GENESEE RIVER IN ROCHESTER, N. Y.
It is estimated that the extra cost to make this bridge wide enough to carry these two rows of parked cars is costing the people of the city of Rochester $1 a day for each parking space provided

where this practice is being followed, bus service is being discussed for use in St. Louis as a means of carrying motorists from a municipal parking station on the waterfront to the business district.

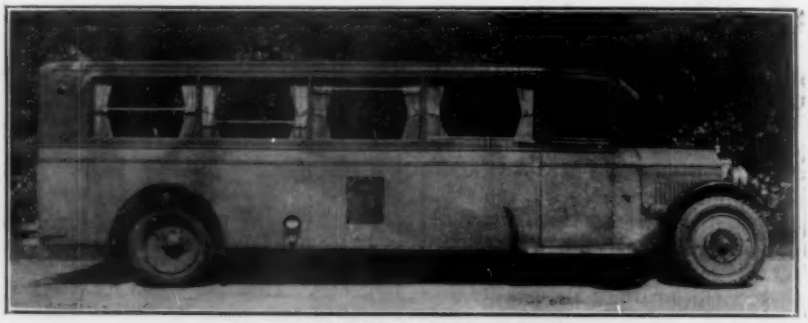
In Rochester, N. Y., a de luxe bus serves the people in an exclusive residential section, providing them with limited service direct to the business district. This service gives the business men of this district all the advantages of driving their own cars, as the bus picks them up at their homes and drops them in front of their business establishments. They are thus saved the trouble and expense of parking their cars or employing a chauffeur to take the car back home. For some this saves the expense of owning two cars, as the family then can have the use of the car during the day. The men in riding this bus regularly get club-car sociability, and the practice helps to relieve traffic congestion and the parking problem in the downtown district.

How Shall Downtown Parking Space Be Provided?

A provision for municipal parking, though being much discussed by traffic engineers of our large cities, has not yet been carried out to any great extent, Chicago being the only city which has any large municipal parking space. St. Louis is making plans for a huge municipal parking space on the river-front. The principal difficulties met with in providing municipal parking areas is the lack of available space and the problem of financing these projects. St. Louis and Chicago are fortunate in having the available space. The method of financing and operating municipal parking has aroused considerable discussion and involves the question of municipal ownership and operation, which is contrary to American ideas. The expenditure of large sums of money to provide free parking space which benefits comparatively few autoists is generally objected to by the public at large, which in most cases profits only indirectly if at all.

A Remedy in Downtown Private Parking Stations and Ramp Garages

To solve the parking problem in the downtown business district, the establishment of privately owned stations and ramp garages must be encouraged. Free municipal parking stations would discourage such practice. To be economically sound and at the same time fair to the public at large, users of municipal parking stations should be charged a fee at least sufficient to meet the cost of maintenance and interest charges on such improvements. Some traffic experts have even gone so far as to suggest that all autoists should be taxed or assessed for the privilege of storing their cars all day in any public street. While the writer knows of no instance where this practice is being followed, it would seem that there is much food for thought in the suggestion, especially in instances where parked cars are occupying very valuable space for long periods of time and where such parking is costly to the community in traffic congestion and no benefit is derived from the practice by any others than the owner of the vehicle.



A DE LUXE BUS FOR LIMITED SERVICE
Several of these operate from an exclusive residential section in Rochester to the business district

A PARKING STATION OF THE PHILADELPHIA RAPID TRANSIT CO.
This is located near one of the subway terminals. The 25-cent parking fee includes a ride downtown and return

Snow-Plowing 200 Miles of Streets in Springfield, Mass.

By CORNELIUS W. PHILLIPS

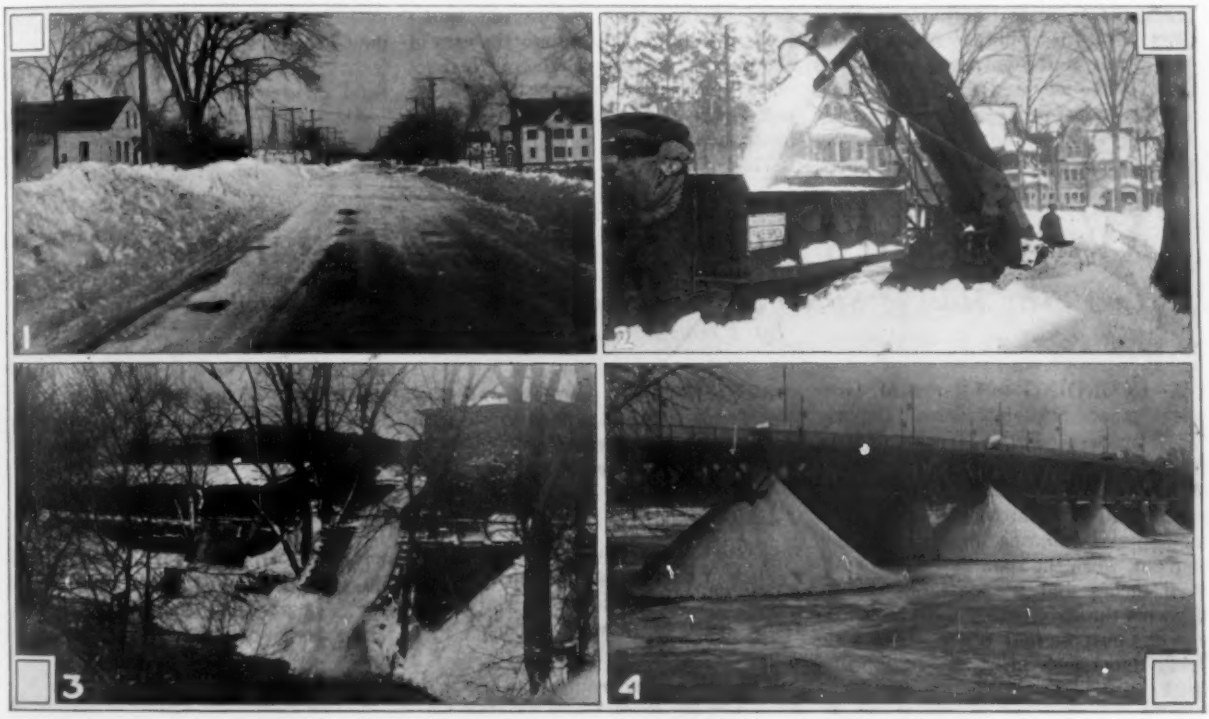
INSPECTOR, DEPARTMENT OF STREETS AND ENGINEERING, SPRINGFIELD, MASS.

IN the work of removing snow from the streets, many difficulties have to be confronted. Various devices have been offered for effective removal. Consideration must be given to every angle of the work, such as weather conditions, methods of removal and disposal, vehicular and motor traffic, street railway and bus lines.

Springfield, Mass., has gained valuable knowledge of this work in its activities in the last six years and has developed ten Caterpillar tractors.

Springfield has 200 miles of public streets, every mile of which is plowed during every snowstorm. Each snow-plow when it leaves the municipal garage is equipped with everything necessary for effective plowing. The driver of each plow is supplied with a route card designating the streets to be plowed. Inspectors who are on duty during snow removal are responsible for the execution of the plowing in their field, owing to the fact that the disposal of snow is accelerated by a flow of water.

At the garage is a map designating all snow-disposal points. When each foreman in charge of snow-removal gangs is sent to remove snow in a certain district, it is his duty to acquaint himself with the nearest disposal point in order that there may be no delay in the removal operations. As soon as plowing operations have progressed to the point where snow loaders can be used, they



CLEARING AND REMOVING SNOW FROM THE STREETS OF SPRINGFIELD, MASS.

1. A section of the Boston Post Road after the plows had completed their work. 2. A Nelson-Fordson loader removing snow from one of the main arteries on the outskirts. 3. Trucks dumping snow into Mill River by means of two snow tipples. 4. Snow dumped from the Memorial Bridge across the Connecticut River, showing piles of snow on the ice

a definite program. Proper organization is the most essential factor in the effective and economical removal of snow. In Springfield, the first activity in the fall of each year is the preparation of a snow map clearly defining each snow-plowing district and the location of each snow disposal point. This snow map is divided into 28 routes or districts. There are, at present, 48 blade-type snow-plows, 1 Walsh V-type with wings 3 feet long, 1 heavy-duty V-type Sargent plow, 2 light-duty V-type Sargent plows, and 4 Fordson tractors equipped with rotary brooms for sidewalk cleaning. The heavy-duty plows are used with 5-respective districts. Four- or five-blade type plows are kept in reserve at the garage ready to be sent to any snow-plowing district in case of a serious breakdown.

Disposal methods play an important part in the economical removal of snow as well as presenting their own problems. In Springfield, utilization of manholes on the Memorial and North End Bridges and the construction of two snow tipples, along with the many sewer manholes throughout the city, afford the most effective method of disposal. The construction of the two snow tipples greatly relieved the situation in Springfield, owing to the fact that the disposal of snow is accelerated by a flow of water.

are sent into designated districts, accompanied by trucks. Springfield has at present two Barber-Greene loaders with belt conveyors having a digging width of 6 feet, two Nelson loaders and two Nelson-Fordson loaders.

The city has made a practice of removing snow from all main arteries within the city limits and all the side streets in the business district as well as many streets in scattered business districts throughout the city. Special trucks are sent out to remove the snow from in front of all fire-stations, and from churches and homes where a funeral is to be held.

Whereas formerly there was considerable delay in the removal of snow in the business sections during the daytime, owing to automobile parking, now men are sent out to erect barricades along the districts where snow is to be removed, to prevent parking. As these sections are cleaned, the barricades are continually being moved ahead, and with the one-hour parking system in effect in the business zone, there is very little trouble in the removal of snow.

From the first fall of snow, the snow-removal equipment is continuously working. Every man in the department is constantly looking for ways to improve the service and to cut down costs. Experience has shown that it is much easier and more practical in every way to fight a storm when it begins rather than to wait until it is over, when the accumulation of snow may be too deep for it to be easily handled with the equipment at hand.

Cooperative Snow Removal in Hazleton, Pa.

By JERRY ROUGH
CITY ENGINEER, HAZLETON, PA.

SNOW removal in the city of Hazleton, in the east central section of Pennsylvania, about 20 miles southeast of Wilkes-Barre, is confined to that portion of the main street where the movement of snow by the Lehigh Traction Co., a local corporation operating the street-railway system, completely blocks the entrance to business places. The city and the Lehigh Traction Co. cooperate in removing the snow from this street. The traction company furnishes the cars for hauling the snow, and the city furnishes the labor and equipment for loading.

Loading equipment consists of one Nelson snow loader and a truck equipped with a blade-type snow-plow. The plow moves the snow from the center to the sides of the street, where the loader picks it up and loads it into the cars of the traction company. This method requires the loading operation to move on both sides of the street, which is 100 feet wide.

This method of removal has been found very satisfactory and efficient under the conditions which exist in Hazleton. There is a lack of adequate dumping ground in close proximity to the loading operations. There is not a creek within the city other than a small sewer outlet, and all the idle ground is undermined coal property upon which the city is not allowed to dump because of the flood menace in a thaw.

All street crossings throughout the city in the business section are cleaned by hand.

Watertown's Snow-Removal Organization

Over Sixty Miles of Streets in Heavy Snow Belt Kept Open Throughout Winter by Prompt and Steady Efforts

ACCORDING to Charles M. Getman, Superintendent, Department of Public Works, Watertown, N. Y., in order to keep the more than 60 miles of Watertown streets passable at all times in winter, it is necessary to start plowing immediately, day or night, when the snow reaches a depth of 6 inches and keep steadily at it, throwing the snow back toward the curb. For this purpose four White trucks with Frink underslung plows and one 5-ton truck with a Frink V-plow are used. The latter is also used to open the roads for the smaller plows.

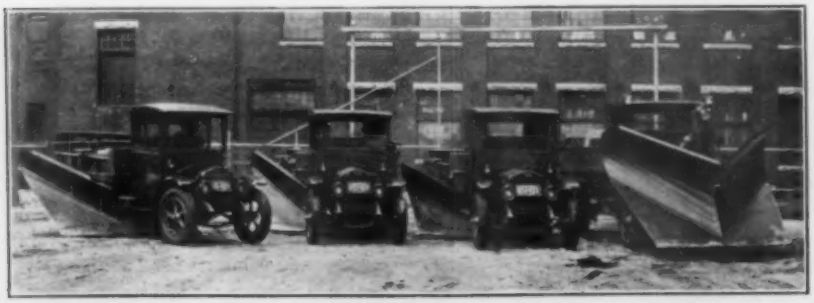
After the storm ceases, the plows are sent over the streets again to widen them as much as possible. This naturally leaves a bad ridge of snow at the curb, so that when the spring thaws come, there is some trouble in getting the water from the sidewalks. In very bad storms, when it is hard to see well, a man is sometimes put on the plows to assist the truck drivers.

At the end of the storm all street intersections are widened and the crosswalks and alleys cleaned by hand. The sanding of hills or places where sheet ice has formed on the sidewalks is attended to at once to prevent accidents and slipping.

With the present equipment and with the aid of the Black River Traction Co., it has been possible to remove the snow from the Public Square and other places where it cannot be entirely cleared from the road by plows. In especially heavy storms it has been found necessary to open outlying thoroughfares that cannot be reached by plows, by the use of teams and laborers to make the road passable and permit those in the outlying districts to reach Watertown stores and entertainments.

The city does not own a snow loader. All the trucks which are used to remove snow from the Public Square and intersections are loaded by hand. It is necessary at times to hire five or six trucks for a day or two for this purpose.

During the winter of 1927-28, the cost of snow removal was about $18,000, and $10,000 has been appropriated to cope with the storms of 1928-29.



A PORTION OF THE TRUCK-MOUNTED SNOW-PLOWS USED BY WATERTOWN, N. Y.

Regional Planning Essentials

AN effective commission; proper direction of the work; sound engineering principles; adequate research and statistics; a comprehensive highway plan; a wholesome regulation of land subdivision; regulation of use of property based on comprehensive zoning; recognition of the problems of landscape design; informational material properly prepared—brief, concise, and with emphasis on visual persuasion; above all, the molding of public opinion for a comprehensive plan, well prepared and possible of accomplishment.

—CHARLES H. DIGGS,
Director, Regional Planning Commission, Los Angeles, Calif.

The History of a Small Water-Works Sinking-Fund

What Rate of Return Can a Sinking-Fund Be Expected to Earn?

By CHARLES W. SHERMAN

METCALF & EDDY, ENGINEERS, BOSTON, MASS.

THE rate of return which may be expected upon invested sinking-funds has generally been arbitrarily assumed as equal to the average rate of interest upon the type of securities in which the fund may legally be invested. That this assumption may not always be justified and that many sinking-funds have earned returns considerably smaller than the average current rate of interest at the time of their establishment, has been supposed for some time, but comparatively little authentic information is available to show what actual conditions may be. For this reason it is believed that the accompanying tabulation containing a substantially complete history of a small sinking-fund will be of interest and of value.

The fund referred to is the sinking-fund of the Water Department of the town of Belmont, Mass. In this case the Water Commissioners were designated by the act of the Legislature establishing the water-works as trustees of the sinking-fund for the water-works bonds. Accordingly, the water sinking-fund was kept and administered separately from other sinking-funds of the town, and the significant data are more readily obtainable than might otherwise be the case. The writer has been one of the Water Commissioners since 1908 and has therefore been connected with the administration of the fund through the greater part of its life.

Although the water-works were established in 1887, the early financing was either by serial notes or by appropriations of taxes, and the first sinking-fund bonds were not issued until 1895. These were 30-year bonds for $8,000. Further issues were in 1896 ($11,000), 1899 ($7,000), and 1909 ($10,000), a total of $36,000 of bonds to be retired through sinking-funds. All the bonds were issued for terms of 30 years, so that the sinking-fund would normally have run until 1939.

Shortly after 1910, the Legislature passed an act prohibiting further issues of sinking-fund bonds, so that the fund after that date was administered solely for the retirement of the bonds previously issued.

In making up the tabulation, the rate of return has been computed, taking as the earnings the amount of money actually collected or credited, and as the principal sum upon which the rate should be computed either the value of the sinking-fund at the beginning of the year or the mean of the values at the beginning and the end of the year. The latter is believed to be the more significant, since contributions to the sinking-fund and interest earned are supposed to be put at interest without delay. As a matter of fact, there is usually some delay in making suitable investments of the additional funds, and in some cases there are doubtless delays in collecting coupons upon bonds held in the sinking-fund.

In the tabulation no attempt has been made to take account of the times when accretions to the fund became actually available, nor of interest, accrued but not collected at the end of the year.

Massachusetts laws limit the securities in which such sinking-funds may be invested to those which are legal for Massachusetts savings banks. During the early years of the fund many such bonds were issued at 3½ per cent, and few bore returns in excess of 4 per cent. Taking into account the delays in reinvestment and similar causes, and adjusting for apparent failure to collect interest promptly when due in one or two cases, it appears that the rate of return actually earned up to 1910 was seldom in excess of 3½ per cent. Between 1910 and 1917, the rates increased slightly, probably because the proportionate sums remaining uninvested were comparatively small in proportion to the total value of the fund. With the increase of interest returns following the war, it became possible to re-invest a portion of the fund in such a way as to obtain somewhat increased rates of interest, and finally when the investments were sold, beginning in 1925, for the purpose of paying off the bonds, the profit upon the sale of the bonds became an important element in the earnings for the year.

In preparing the tabulation, bonds belonging to the sinking-fund have been valued at cost until such time as they matured or were sold. In no case were they sold at less than cost; consequently, the earnings shown during the last few years have been at a comparatively high rate. If an appreciable portion of the sinking-fund had been required for paying bonds maturing in 1917 to 1922, the result would have been quite different,

INTEREST* EARNED BY WATER-WORKS SINKING-FUND, BELMONT, MASS.

Year	Value of Sinking-Fund at End of Year	Value of Sinking-Fund Mean for Year	Earnings During Year	Rate % on Mean Value	Rate % on Value at Beginning of Year
1896	$ 160.00	.....	.....	....	....
1897	546.40	$ 353.20	$ 6.40	1.81	4.00
1898	948.30	747.35	21.90	2.93	4.00
1899	1,366.30	1,157.30	38.00	3.28	4.00
1900	1,941.00	1,653.65	54.70	3.31	4.00
1901	2,538.70	2,239.85	77.70	3.47	4.00
1902	3,160.26	2,849.48	101.56	3.57	4.00
1903	3,790.87	3,475.57	110.61	3.18	3.50
1904	4,390.69	4,090.78	79.82	1.95	2.10
1905	5,126.91	4,758.80	216.22	4.55	4.93
1906	5,820.02	5,473.47	173.11	3.17	3.38
1907	6,492.06	6,156.04	152.04	2.47	2.61
1908	7,218.80	6,855.43	206.74	3.02	3.19
1909	8,206.62	7,712.41	267.22	3.46	3.70
1910	10,380.97	9,293.50	356.85	3.85	4.48
1911	11,444.16	10,912.57	408.19	3.74	3.94
1912	12,567.94	12,006.05	468.78	3.91	4.10
1913	13,663.77	13,115.86	495.83	3.78	3.95
1914	14,807.87	14,235.82	544.10	3.82	3.98
1915	16,001.83	15,404.87	593.96	3.86	4.00
1916	17,246.27	16,624.05	644.44	3.87	4.02
1917	18,531.17	17,888.72	684.93	3.84	3.97
1918	19,878.74	19,204.96	746.77	3.89	4.03
1919	25,653.05	22,765.90	774.31	3.40	3.89
1920	26,770.03	26,211.54	1,116.98	4.26	4.36
1921	28,013.47	27,391.75	1,143.44	4.18	4.27
1922	29,231.49	28,622.48	1,218.02	4.25	4.35
1923	30,530.17	29,880.83	1,298.68	4.35	4.44
1924	31,907.25	31,218.71	1,377.08	4.41	4.51
1925	25,243.81	28,577.53	1,336.56	4.68	4.19
1926	15,827.05	20,535.43	1,583.24	7.71	6.27
1927	16,821.44	16,324.25	994.39	6.06	6.25
1928	7,448.25	12,134.85	1,126.81	9.29	6.70
				32)127.32	32)133.11
				3.98	4.16

* Including net gains on securities sold and without adjustment for interest accrued but not paid.

as it would then have been necessary to sell securities at less than cost, and the corresponding average rate of return would have been considerably less than has been the case with this particular fund.

Although the fund would normally have run until 1939, it was found possible during the year 1928 to purchase all of the outstanding bonds issued in 1900 at a slight premium and as the sinking-fund was adequate to do this, those bonds were bought and retired. There now remains outstanding only $7,000 of sinking-fund bonds, and there are in the sinking-fund more than sufficient funds to meet this payment which is due in 1929. The table on the preceding page therefore shows a substantially complete historical record of this fund.

Profitable Garbage Disposal in a Town of Fourteen Hundred

By W. LOVETT DOUGLAS
CITY MANAGER, DUNEDIN, FLA.

THE problem of sanitation dates back centuries. As long as the human inhabitants of this world were more or less scattered, the problem of sanitation did not present any particular difficulty, as the elements took care of all refuse. As soon as man began to assemble in close quarters, sanitation became a problem which was handled carelessly for many centuries, causing numerous epidemics which resulted in the deaths of thousands of people.

There are countless small incorporated cities that are handling the disposal of garbage by much the same method that Dunedin, Fla., practiced for years. The garbage was dumped on the surface of the ground on an isolated place and there burned, when it would burn. What would not burn was either covered with earth or allowed to rot away. Around the dump in Dunedin, during the summer months especially, swarms of flies gathered and the city was forced to use large quantities of disinfectant. This helped somewhat, but sadly failed to solve the problem, and was expensive.

Beccari System Installed

Dunedin faced the problem of securing better garbage disposal. Incinerators were investigated carefully, but it was thought that the city was not financially able to invest in a plant of this type. After a conference with L. P. Berry, Jr., of the Sanitary Engineering Co., Tampa, Fla., and the examination of a test cell at Bellair, Fla., it was decided to install the Beccari garbage disposal system, because of its simplicity of operation, low cost of construction, negligible cost of operation, and the sanitary manner in which the garbage is converted into an odorless fertilizer or humus.

The City Commission, on the recommendation of the Health Officer and City Manager, authorized the construction of five cells, with the necessary storage room and equipment, the cost of the entire plant including the shed, grinder and engine, with a capacity of approximately 50 tons per month of wet garbage, was approximately $4,500. The cost of the shed and equipment was about equal to the cost of the cells.

The five cells were built side by side on one foundation, measuring 45 feet long and 10 feet wide, averaging 10 feet high. The walls were built of hollow tiie, which allows the circulation of air around the mass of garbage. Three layers of trays built of 2 x 4 timbers, spaced 1½ feet apart, carry the garbage and are supported on other timbers in the side of the walls. Each cell was built airtight so that air and gases could not travel from one cell to another. Drains were put in to take away the liquid from the garbage, and were conducted to a small one cell septic tank. The receiving doors on the top were constructed so that they could be raised by counterweights and covered the entire top of the cells. The discharge doors were built on the inside of the shed and measured 3 feet by 6 feet. The ports, or vents, were constructed in the wall opening into the shed. Two were placed at the bottom of the cell and two at the top. These were covered with rubber gasket blocks which were tightened by nuts or bolts built into the reinforced concrete.

The shed was built of galvanized iron and measured 43 feet by 12 feet, with an extension 18 feet by 13 feet, to accommodate the engine and grinder which is used to grind the garbage into fertilizer when it is discharged from the cells at the end of thirty days.

THE NEW DUNEDIN BECCARI TYPE GARBAGE DISPOSAL PLANT

Operation of the System

The principle of the system is that the garbage, from which cans, bottles and excess paper have been removed, is dumped into a tray to a depth of about 2 feet. Then another set of trays is put in and garbage dumped on this set to the same depth. Similarly, a third set of trays is filled. To each 100 pounds of garbage 3 pounds of lime is added to counteract the acid contents of citrus fruits. After loading the cell for about seven days, it is closed down airtight. Anerobic bacteria then work on the garbage, breaking down the mass. The temperature rises steadily to a maximum of from 135 to 145 degrees at the end of the fifth day. As soon as the temperature begins to decline, the air ports are opened and oxygen admitted. The anerobic bacteria become dormant and the aerobic bacteria finish the work, so that

at the end of thirty days the garbage comes out practically dry, containing about 10 per cent of moisture. From this garbage, a fertilizer amounting to from 15 to 20 per cent of the original garbage by bulk is secured.

Operating Difficulties Overcome

The first difficulty experienced in operation was an unusual number of maggots driven out from the cells at the edges of the doors, seeking to escape the intense heat of the fermenting garbage. This was readily overcome by rebuilding the doors, so that the maggots died in the cells and became a part of the garbage.

It was found that instead of 3 pounds of lime to each 100 pounds of garbage, it is better to add from 5 to 6 pounds during the fall, when citrus fruits predominate in the garbage.

It was further found that at the end of thirty days the garbage was not dry enough to grind. After allowing about ten more days for drying in the open shed, it was ready for grinding. It is believed that the drying can be speeded up with a slightly different arrangement of the port, or vent. It is further planned to divide the five cells into ten cells, which will be nearer the size which the city of Dunedin, with its population of about 1,400, needs. At the present time, only about one-fifth of the capacity of each cell is used before it is necessary to seal it up. The receiving and discharge doors are to be made smaller, making them more convenient to handle, and they will be made more nearly airtight.

Cooperation of Householders

In order to procure the most efficient results from the plant, it was necessary to pass an ordinance requiring the separation of garbage by the householder. The majority of the citizens have complied with the first notice, and little trouble is being experienced through failure to separate the inorganic material.

Garbage is collected in large garbage cans; the bottles, papers, cans, etc., are placed in the open body of the truck and hauled to the rear of the dumping-ground and there burned in the open. It is planned, in the near future, to build a double Dutch oven incinerator to handle this refuse.

Use of Humus and Fertilizer

The sandy soil of Florida in this section needs humus to build it up for efficient production. The humus produced by the Beccari cells from garbage analyzes high enough to be of commercial value, estimated from $20 to $30 per ton.

The general comment on the plant is that it is the neatest, cleanest and most free from odors of any disposal plant seen by those who have visited it. The city, besides eliminating the flies and disagreeable odors, is saving $40 per month on the handling of the garbage, to say nothing of the return for the fertilizer, whether sold or used on city parks and parkways. The first twelve months' saving of $480 is over 10 per cent interest on the investment of $4,500 in the plant, and no value can be placed on the health improvement to the community.

Snow Removal in New York City

By ALFRED A. TAYLOR
COMMISSIONER, DEPARTMENT OF STREET CLEANING, NEW YORK

THE Department of Street Cleaning of New York City is faced every winter with the huge task of removing the snow and ice from the congested traffic streets of the boroughs of Manhattan, the Bronx and Brooklyn, involving an average expenditure of approximately $3,500,000 annually. The work includes the removal of snow from 1,200 miles of streets and from 12 bridges over the East River and the Harlem River. To handle this work requires the entire department force of 10,000 men and officers and an average of 15,000 laborers, 2,000 department vehicles, 2,000 contractors' vehicles and about 500 vehicles of the street-railway companies.

Approximately 800 motor-driven snow-plows and brooms are started when the snow begins to fall and are kept in continuous operation day and night during and after the period of snowfall, keeping the roadways open for traffic at all times.

This year the Department has installed a new method of cleaning crosswalks, through the operation of mechanical appliances known as crosswalk plows. The machine has been tested and found to perform excellent work. The Department has purchased 38 of these machines and they have been assigned to prominent thoroughfares in the three boroughs, the idea being to start them when the snow begins to fall and keep the crosswalks clear for pedestrian traffic.

Snow Removal in Ann Arbor, Mich.

By GEORGE H. SANDENBURGH
CITY ENGINEER, ANN ARBOR, MICH.

ALTHOUGH Ann Arbor is in Michigan, which has a reputation for heavy snowfall, this city is not in what is known as the snow belt and it is unusual to have any great amount of snow at one time. During some winters there is considerable snow, and for a period of two, three or four years there may be very little snow fall.

Snow removal is limited to the business district of the city, which comprises about twelve blocks. In this section the snow is loaded into trucks by hand shovels and hauled to parks or dumps. The sewers are not large enough to use them for disposing of the snow by dumping.

Three one-man power graders are used in the residence section of the city to scrape the snow from the center of the street to the curb line. We try to throw the snow on the lawn extensions if possible. By means of these one-man power graders, the snow is kept from building-up on the pavement or street, and only about one inch of snow or ice is permitted to remain on the pavement. Where snow and ice are allowed to accumulate on the street, ruts are invariably formed which are dangerous to traffic and which cause excessive wear on the pavements due to the tire chains and to traffic's being concentrated on the small area and not distributed over the entire width of the pavement.

The average snowfall per snowstorm in Ann Arbor is about 4 or 5 inches. Very rarely is there as much as 12 inches of snow during one storm. This amount of snow per storm happens so rarely that the city has no special snow-removal machinery, and up to this time it has not been deemed economical to purchase snow-removal machinery, for the reason that the investment would be idle most of the time.

Sidewalks

The city is divided into eight districts for the removal of snow from sidewalks. This work is done by horse-drawn snow-plows furnished by the city, and the teams are privately owned and are paid so much per hour for the time they actually work. This relieves the city of any expense other than the actual cost during the time of the snowstorm. The plows are called out when the depth of the snow reaches 3 inches.

A POSTER PLEA FOR MORE PLAYGROUNDS AND SAFER STREETS

With the approach of the 1929 baseball season, this new poster in the American Automobile Association's public school series should have wide and effective use. The original measures 17 x 23 inches and is attractively printed in green and black. Copies of this and other traffic and safety posters are obtainable from the Safety Department of the A. A. A., at Pennsylvania Ave. and 17th St., Washington, D. C.

County Road Construction

Abstract of Report of Standards Committee No. 2, County Highway Officials' Division, American Road Builders' Association; C. E. Grubb, County Engineer, Newcastle County, Del., Chairman

The report of the Construction Committee, a sub-committee of Standards Committee No. 2, is a summary of present practices on various types of construction in widely distant counties of the United States. The counties supplying information have been selected because of their activity in road construction and the progressive attitude of their road personnel. Their requirements and methods are representative of the best modern practices in their respective communities.

Untreated Surfaces—Gravel Roads

By Charles W. Deterding, Jr.
County Engineer, Sacramento County, Calif.

CROSS-SECTIONS that would apply in one locality may not be adaptable in other sections. In the dry or arid regions of the United States, 1 inch is a sufficient crown for an 18-foot gravel road. It should increase from this up to 5 or 6 inches probably in sections where there is much rainfall over a long period of the year.

The thickness will depend largely on the character of the traffic and the nature of the subsoil. Each road is a problem by itself and must be worked out to suit local conditions.

Description of Surface

It is a tendency to maintain gravel roads with a light surfacing of fine pebbles approximately ½-inch thick. This makes a good surfacing in dry sections if regularly maintained.

Where the rainfall is considerable, the surface is more compact, depending upon the nature of the binder material.

The tendency of modern practice in gravel road construction is to use a gravel in which the largest stones are not over 1 inch. This is more particularly so in one-course construction. In two-course construction the lower foundation may be composed of larger fragments than in the top course.

In one-course construction the larger stones should be raked out if the gravel is not run through a screen.

It is important that the gravel consist of various sizes of stone in addition to binding material so as to develop a surface that is dense and can be constructed with a smooth, uniform surface.

The United States Bureau of Public Roads gives the following grading for an ideal gravel: "Seventy per cent of which are retained upon a one-eighth screen and 30 per cent passing the one-eighth screen. Of this, 30 per cent, approximately one-third (10 per cent of the whole sample), should be below 200. The amount of clay for the best result will vary considerably with the climatic conditions."

The best binder material consists of some of the softer varieties of stone which pulverize under traffic and have a high cementing value. While clay is the most common binder, it is not the best and should not be used in excessive amounts.

The composition of the gravel used in road construction should be of hard, durable and wear-resisting stone.

Equipment

The equipment used in gravel-road construction varies somewhat in different localities on account of the development of the country and the wealth of the state or municipality.

The grading is done with the modern tractor and graders, which are now common in road building. The rolling is usually done with one of the standard three-wheel type gas or steam rollers. Most gravel hauling and spreading is now done from motor trucks; some material is still hauled with teams.

Construction Methods

There are two general types of gravel road construction, namely, the surface method and the trench method.

Single-Course Surface Placed on Top of Earth Road.—In this type of construction the crown of the earth road is finished very flat, in some cases almost level. The subgrade should then be very thoroughly rolled, after which the gravel is applied in a uniform layer with the maximum thickness in the center, gradually decreasing in thickness toward the edge of the highway. In this method of construction the maximum thickness is placed where the maximum traffic will be normally located, and the material has less thickness at the edges where the traffic is lighter. The drawback to this system is that a large portion of the gravel works off toward the edge of the road and requires considerable maintenance or additional gravel to keep the road in good repair.

While in times past it was always considered good practice to thoroughly roll gravel roads before the traffic went on them, the modern tendency is to let the traffic do most of the compacting. I think that after the gravel has been placed and thoroughly wet it should be given a light rolling, allowing the traffic to finish the compacting. The latest practice is toward compacting by traffic and keeping the road in smooth condition by blading.

Trench Method

Two-Course Trench Method.—In this type of construction the subgrade is trenched out to the depth required, and the subgrade rolled and the gravel applied in two courses—a base course and a surface course. The methods of construction are about the same as in the surface method.

Single-Course Trench Method.—This is similar to the two-course trench method except that the rock is put in one course instead of two. The same general methods of construction apply in this type as in others.

Maintenance

Maintenance of a gravel road should begin immediately upon its completion and be diligently continued, for only in this way can a gravel road have a satisfactory riding surface.

At the beginning of the winter season all the ditches and culverts should be cleaned, the surface smoothed and all depressions filled so that no water will stand on the surface of the roadway.

In the early spring the road should be gone over as soon as possible with a

The 1929 Convention of the American Road Builders' Association

The sessions of city officials, county officials and contractors, held in the Public Auditorium, Cleveland, Ohio, January 12-18, have provided the entire road industry with valuable material for serious thought.

The accompanying reports have been selected as representative of the vast scope of these meetings. Other papers in very much abridged form will be published later.

grader, moving the top gravel back and forth so as to take out all the depressions and leave the road in a smooth condition for the patrol men during the coming summer.

In places where the original material has settled or sunk into the subgrade, new material should be added.

During the dry period a surfacing of fine gravel should be maintained over the entire width of the roadway, thus providing material that the patrol men can use in keeping the surface smooth for summer traffic.

Most of the maintenance work can be done with motor graders.

Conclusions

Where local gravel deposits are obtainable and the quality of the gravel is approximately what is required, a very satisfactory road can be constructed, providing that reasonable care and attention to details are closely followed.

The road should first be graded to conform with a well-laid-out grade line, and the drainage provided.

The subgrade should be thoroughly rolled and compacted.

The gravel should be at least 8 to 10 inches in depth and deposited in a trench. I think it advisable to make the gravel somewhat thicker on the edges, as this is the point where most of our roads fail.

The standard methods of maintenance should be followed.

I do not think it advisable to plan on using a gravel road without some form of surface treatment for more than 400 vehicles per day.

In this section of the state, where we have eight or nine months of continuous dry weather, I would recommend oiling of the surface.

Caliche Base Courses and Surfaces

By A. J. Wise

County Engineer, Harris County, Texas

THE principal factor of economy in road building is that of the utilization of local materials to the best advantage. A local material found in many of the southwestern and western counties of Texas is caliche.

Caliche has made possible the building of many miles of road that otherwise could not have been surfaced except at prohibitive cost. Caliche is a mixture of calcareous dust and quartz sand, sometimes mixed with gravel or small stones. There is a wide variation as to quality. Some, after the surface crust hardened by the weather has been blasted off, can be loosened up by plow. This material when put on the road packs well and hardens into almost a stone formation after exposure to the weather. Other pits of caliche are too hard to plow, and powder must be used in the mining. Under traffic or the roller on the road, however, the lumps break up and mold together, forming a dense, compact surface.

The construction of caliche roads usually is very similar to the construction of other types of light-class surfacing, such as gravel, shell, etc. However, in most cases where the average rainfall is very light, best results have been obtained by puddling the caliche. This can be done either in the pit before the caliche is hauled on the road or by sprinkling with water after the material has been spread upon the subgrade. In case puddling is done in the material pit, the caliche should at once be hauled onto the road, spread by means of hoes, rakes or shovels, shaped and rolled before it has dried out. In case puddling is to be done after the caliche has been placed and spread upon the subgrade, the surface should be thoroughly harrowed, plowed or otherwise opened up during the process of sprinkling, in order that the proper puddling of the caliche be insured.

The greatest objection to caliche surfaces has been dust and glare, but in the last few years the Texas Highway Department and some Texas counties have topped these caliche roads with a natural limestone rock asphalt treatment about one inch thick, placed cold, which has proved very satisfactory. A well-constructed caliche base also serves as a splendid foundation for the application of a one- or two-course inverted penetration surface treatment.

As previously stated, the quality of caliche found in different localities and even in the same locality varies considerably. Roads of the best quality of caliche are as good, in the writer's opinion, as those built with limestone or gravel. There are others that are only slightly better than a mud-shell or sand-clay surface, but as this material is found conveniently along the road its use is economical until traffic increases to such an extent as would require concrete or other high-type pavement to carry it.

Sand-Clay

By T. L. Pendergrass

County Road Superintendent, Durham County, N. C.

THE name sand-clay is given to a type of road surface that consists of natural or artificial mixtures of sand and clay loam. Out of these materials surfaces are constructed on clay or sand. The character of soil and sand varies so much that one can hardly follow any set specification. You must take the best of each one, study it and use what seems best for the particular kind of soils or clays upon which you are building or which may be available. Better results are obtained when you can more nearly follow the well-established principles in this type of construction. The requirements for success are that the materials be reasonably suitable in character to secure a bond sufficient to hold in dry as well as in wet weather.

The engineer or road man who can successfully build this type of road has a broad field to work upon and will find it an interesting study. To the average county road engineer specifications mean but little when it is impossible to find any material available called for in said specifications, but with the average local material one gets better results by following the well-laid plans in the building of untreated surface roads.

The materials usually used are the soils, sands and clays found upon the roads to be surfaced, and this material varies greatly throughout the county and varies considerably in a few hundred yards at times in the same location.

There are certain principles in highway construction that can be applied with some modification to meet almost any type of soil. Most of the specifications for building sand-clay roads are written scientifically for building roads under the most favorable circumstances, but that means very little to the average road builder when none of the materials called for are available. He must use the best material available and must understand some of the characteristics and behavior of the materials with which he has to work.

Good drainage is absolutely necessary in the construction of sand-clay roads. Proper sub-drainage and surface drainage must be provided. A great deal depends upon the sub-soil, whether sand or clay. The amount of clay necessary is that amount which will just fill the voids in the sand. It may be approximately determined by the amount of water in the sand.

The construction of sand-clay roads is a slow process. The best results can be obtained only by giving the road constant attention for some time after it is completed or until such a time as traffic has compacted it sufficiently. In building a sand-clay road where there is a sub-soil, the roadbed should be shaped to the desired crown. The clay is brought onto the road and spread in a layer of 6 to 8 inches at the center, tapering off to a thin layer to the side. It is necessary that the clay be thoroughly mixed with the sand. In many cases the clay is covered with sand and left for traffic to mix and compact. Quicker and better results can be obtained by harrowing and plowing the surface. It should be kept in shape by the use of drags or road machines.

As a substitute for sand in building

the untreated surface roads, good results are obtained by using rock screenings or dust ranging in size from ⅝-inch to ¼-inch stone with the dust partially screened out. By preparing the roadbed as for the regular sand-clay, shaping it and giving it the desired crown, screenings can be applied at the rate of approximately 50 pounds per square yard and allowing traffic to compact. Where screenings can be obtained at a cost not greater than $1.50 per ton, a good, serviceable road can be built that will take the oil treatments more readily than sand and will be just as serviceable as sand-clay and at a less price.

Waterbound Macadam

Materials for waterbound macadam shall consist of broken stone from sound ledge rock or crushed boulders of such character that it will compact and thoroughly lock under watering and rolling so as to make a stable, well-keyed base. All materials shall be free from clay, vegetable matter, loam and other deleterious matter.

Where broken stone is produced from rounded or waterworn boulders or stones having full-round or half-round surfaces, only material that is rejected by a grizzly with 5-inch clear openings between bars shall be crushed.

All stone shall pass a screen having 3½-inch circular openings and shall be retained on a screen having 1¼-inch circular openings.

Stone shall be sound, of uniform character and quality, and when tested in accordance with the methods described in Section 6, article (c) of these specifications, shall conform to the following requirements for abrasion and toughness:

The loss in the Graded Deval Abrasion Test shall not exceed 5 per cent.
The loss in the Dry Shot Rattler Test shall not exceed 25 per cent.
The loss in the Wet Shot Rattler Test shall not exceed 35 per cent.
The loss in the Los Angeles Rattler Test shall not exceed 35 per cent.

Screenings

Screenings shall consist of material similar to that specified for broken stone and shall be that portion of the product of the crusher, including the dust of fracture, which will pass a screen having circular opening, ½-inch in diameter. Screenings shall show a cementing value of at least 125 pounds per square inch. Screenings will be paid for at the price paid for broken stone.

Construction

Broken stone shall be spread on the prepared subgrade to such depth that when thoroughly compacted it shall have the form and dimensions shown on the typical cross-section.

Where the required thickness is 4 inches or less, the macadam base may be placed in one course. Where the required thickness is more than 4 inches, the macadam base shall be constructed in not less than two courses. Work on each course shall be handled in a similar manner.

If, in handling, the rock is segregated into sizes, it must be remixed until it presents a uniform appearance.

All rock shall be spread from the vehicle by hand or from dumping boards or from self-spreading vehicles. Dumping en masse on the subgrade will not be permitted.

The macadam base shall be thoroughly dry-rolled until the rock does not creep or move under the weight of the roller. Screenings shall then be spread in thin layers and each layer rolled dry until no more screenings can be forced into the voids. The surface shall then be sprinkled with water and again thoroughly rolled. All excess screenings, forming in piles or cakes upon the surface, shall be scattered by light sweeping. The sprinkling and rolling shall be continued and additional screenings applied where bare spots appear, until all the voids are filled, and until a slight wave of excess water and screenings forms a grout in front of the roller. Hand brooms shall be used to sweep the wet screenings into the unfilled voids and to distribute them evenly. The macadam shall be rerolled on succeeding days as may be necessary to bond it thoroughly and secure a satisfactory surface. The quantity of screenings and water to be used shall be sufficient to produce a smooth, hard, well-bonded surface.

The completed base shall have a firm, even surface, conforming to the grade for the bottom of the proposed wearing surface, and of the specified thickness.

Rolling

All rolling shall be done by power rollers of approved type, weighing not less than 350 pounds per lineal inch of tire width. All rolling of broken stone shall commence at the outer edges and continue toward the center. Under no circumstances shall the center of the road be rolled first.

Payment

The price paid per ton per cubic yard for stone (waterbound macadam base, Type A) shall include preparing the subgrade, furnishing all labor, materials, tools, implements, and equipment, and doing all work necessary or incidental to constructing the macadam base.

Conclusions

A waterbound macadam built according to the above specifications is a very fine road for light traffic. Its service ability and wearing qualities may be very materially improved upon by oiling.

Bituminous Surface Treatments by Surface Application Method

By J. T. Bullen
Parish Engineer, Caddo Parish, Louisiana

BITUMINOUS surface treatments of tar and asphalt applied as either hot or cold surface treatments to road surfaces of gravel, lime rock and waterbound macadam are discussed in this report.

Bituminous Material

There appears to be considerable variance of opinion in respect to the relative merits of tar and asphalt for surface treatment and as to the character of each best suited to different surfaces. Choice of materials in different sections shows wide variations as follows:

1. Definite preference for asphalt
2. Definite preference for tar
3. Use of either admitted
4. Tar required for first and second applications and asphalt for subsequent treatments

Cover Material

Cover material in use ranges from sweepings from untreated gravel surfaces for the first application, and coarse sand for subsequent treatments, to washed pea gravel and selected stone chips of trap rock or granite of ½-inch and ¾-inch sizes.

Expressions, however, favor use of hard stone chips, indicating recognition of the value of hard material for the direct wear of traffic even though the base is of a softer nature.

Equipment

Equipment for this work is about the same in all territories, consisting of pressure distributors with warming facilities in sections where cool days are frequent even in the summer period, revolving brooms supplemented by hand brooms where necessary, and rollers of not less than 5 tons.

Mechanical spreaders are required in some territories to secure evenness of spreading and to conserve costly cover material. In one county reporting, a saving of 20 per cent in the quantity of cover has been accomplished by the use of mechanical spreaders.

Construction methods, although differing somewhat in details of procedure, are very similar in general requirements for even the widely different types of road surfaces. For application of bituminous material, all agree that:

1. Road surface should be smooth,

thoroughly compact and absolutely dry.

2. Traffic should be detoured at least until the cover is spread, or one-half only of the width of the road should be treated at a time.

3. The surface should be swept free of all loose or foreign material immediately in advance of the application.

4. The work should be in charge of a careful and conscientious foreman.

5. Care should be exercised on each application to avoid any surplus of bituminous material, as such will likely cause the surface to become wavy.

6. To maintain the rate of application designated, tar or asphalt for cold application should be warmed if necessary, to not over 100 degrees Fahrenheit.

7. Cover material spread by hand should be cast in longitudinal direction.

8. Rolling is desirable to set cover material in place.

Practice suggests a first treatment of not over ½-gallon per square yard in one or two applications, and subsequent treatments of not more than ¼-gallon per square yard of bituminous material. Quantity of cover varies from 12 pounds per square yard for application of ⅛-gallon of bituminous material to 40 pounds per square yard for application of ½-gallon.

Maintenance

Regular maintenance, beginning immediately after the first application of bituminous material, is recognized as a necessity. Routine maintenance includes paint coating of raw spots, skin patching of slightly raveled ones, and patching of holes of extended character with cold patch material and chips mixed for use as required. This maintenance must be followed by periodical treatments of bituminous material and cover of such character and quantities and at such frequency as is deemed necessary under traffic and climatic circumstances encountered, to maintain a serviceable and waterproof surface without the necessity of too extensive or too costly patching.

Cost

The cost for the bituminous treatment in place, including cover material, in territories reporting, ranges from $1,050 per mile for the first treatment of an 18-foot width to $350 per mile for subsequent treatments.

Indications are that roads of this type can be maintained at a cost of from $500 to $800 per mile, including the periodical resurfacing, conditioned that traffic does not exceed an average of 2,000 vehicles per day.

Conclusions

On account of improvements in materials, particularly bituminous materials, and better knowledge of their action under varying climatic and traffic conditions, serviceable roads, for traffic of from 400 to 2,000 vehicles per day, with an average number of trucks only, are being obtained through bituminous surface treatments on low-cost roads.

Indications are that:

1. The range of use of surface treatments on low-cost surfaces can and will be greatly extended, particularly through the large sparsely populated areas where funds are not available for the more costly types of construction.

2. The good results being obtained by surface treatment applications make it questionable economy to construct more costly road surfaces, even if funds are available, where traffic for a number of years is not likely to be excessively heavy in volume or character.

In view of the present expenditures for, and the great future possibilities of, bituminous surface treatments, it would seem that more extensive investigation and research should be undertaken immediately to determine uniform standards to recommend for this class of construction to suit various surfaces and climatic conditions.

Bituminous Surfaces on Portland Cement Concrete Base, Brick Surfacing and Portland Cement Concrete Pavement

By A. J. Wise

County Engineer, Harris County, Texas

THE report of this committee is very important, as it covers the highest types of road construction. Different parts of the country use one or the other of these types for heavy-traffic roads, selection depending to a great degree upon the native material available.

Bituminous Surface on Portland Cement Concrete Base

Our reports show that Warrenite bitulithic, asphaltic concrete and limestone rock asphalt wearing surfaces on portland cement concrete base have been used more than fifteen years in Texas with very good results.

Limestone rock asphalt, which is native to Uvalde County, Texas, contains 9 to 12 per cent asphalt. It can be laid hot or cold from ½-inch to 2 inches in thickness. It makes a good surface, except that it becomes very smooth under traffic.

These pavements with portland cement concrete base are standard for city and rural highway construction of a high type. The concrete base should not be less than 6 inches in depth. A depth of 8 inches appears to be fast becoming a standard. Practice suggests that it is possible to construct a concrete base as lean as 1:2½:5 without having its cementing qualities destroyed, but, in general, under asphaltic top, the bonding limit in the base weakens, and in a 1:3:6 mix it is almost certain to do so.

Brick Surfacing

Brick surfacing on a substantial concrete base is generally used and is suitable for extensively heavy traffic. The base should be at least 8 inches in depth. A 3-inch brick, having lugs with asphalt filler, is recommended. As William H. Connell, W. R. Neel, F. J. Cellarius, and P. J. Freeman have just made an investigation of paving throughout the United States for the National Paving Brick Manufacturers Association, the committee would suggest that those interested in details of brick surfacing, secure a copy of this report when available.

Portland Cement Concrete Pavement

Portland cement concrete pavement is a surfacing of monolithic concrete made of a proper mixture of coarse aggregate, fine aggregate, portland cement and water.

It is possibly the most popular type of rural highway construction for heavy traffic. The concentrated study and research given the details of its construction have led to more nearly standard practices in respect to it than to any other type of road construction.

Materials

The sand should be good, sharp, clean, dry, free from dust, silt or other injurious matter and well graded. It should compare favorably with Ottawa sand in the briquette test.

Coarse aggregate should consist of sound, hard, durable crushed stone or gravel, free from dust, dirt and an excess of flat or elongated pieces. It should have a percentage of wear of not more than 4, and should be well graded between 2¾-inch and ⅝-inch in size.

Cement should be standard portland cement. Water should be free from all acids, alkalies, salts, mineral or vegetable matter. Reinforcement should consist of ½-inch rods for dowel joints and non-galvanized electrically welded fabric wire 6-inch x 12-inch mesh, No. 5 gage, 40 pounds to 100 square feet.

Equipment

Minimum equipment should consist of the following:

One portable paver with time- and water-measuring devices
One finisher

One subgrader and planer
One template
One 10-ton roller
One water pump
Pipe line
Steel forms
One clamshell (1 cubic yard capacity)
One 50-ton bin
One tractor
One road machine
Dump trucks
One scarifier
One turntable

Construction Methods

Lines and grades should be established with due regard to drainage. Good, deep side drains, not too near the pavement, and cross-drains and culverts where necessary, are suggested. In some states the concrete is laid upon a sand cushion of 6 to 16 inches. Whatever the subgrade, it must be thoroughly compacted by rolling or ponding and rodding. The width and depth of the concrete pavement should depend upon the traffic which the road is to carry.

The Bates Standard of 9-6-9 is the best practice for depth of pavement, the width varying. There are still differences of opinion as to the use of expansion joints and reinforcing steel.

The most common practice is to have a central proportioning plant from which the sand and trap rock or gravel are conveyed to the mixer in trucks, the trucks having bodies so divided as to hold one batch in each pocket. The cement is placed on top of each pocket in bags and emptied at the mixer or is added to the batch at the mixer.

The concrete is mixed at least 1¼ minutes in the mixer with the correct amount of water, the reinforcement and center joint being placed just ahead of the concrete. On projects of over 3 miles in length, a finishing machine is required to give an even surface to the finished pavement. The surface is then bolted and tested with a 10-foot straight edge. Test cylinder and beams should be made every day. The time and manner of curing varies. The first day the surface is covered with wet burlap, then the rock is either covered with 3 inches of dirt or ponded for 14 days. In other locations, flake calcium chloride or calcium chloride in solution as an admixture has been used to good advantage.

The shoulders are made and dressed to proper line and grade, and road opened to traffic at the end of 21 days.

Maintenance

The maintenance consists of keeping all grass and weeds cut along shoulders and slopes and the joints and cracks well filled with joint filler.

Conclusions

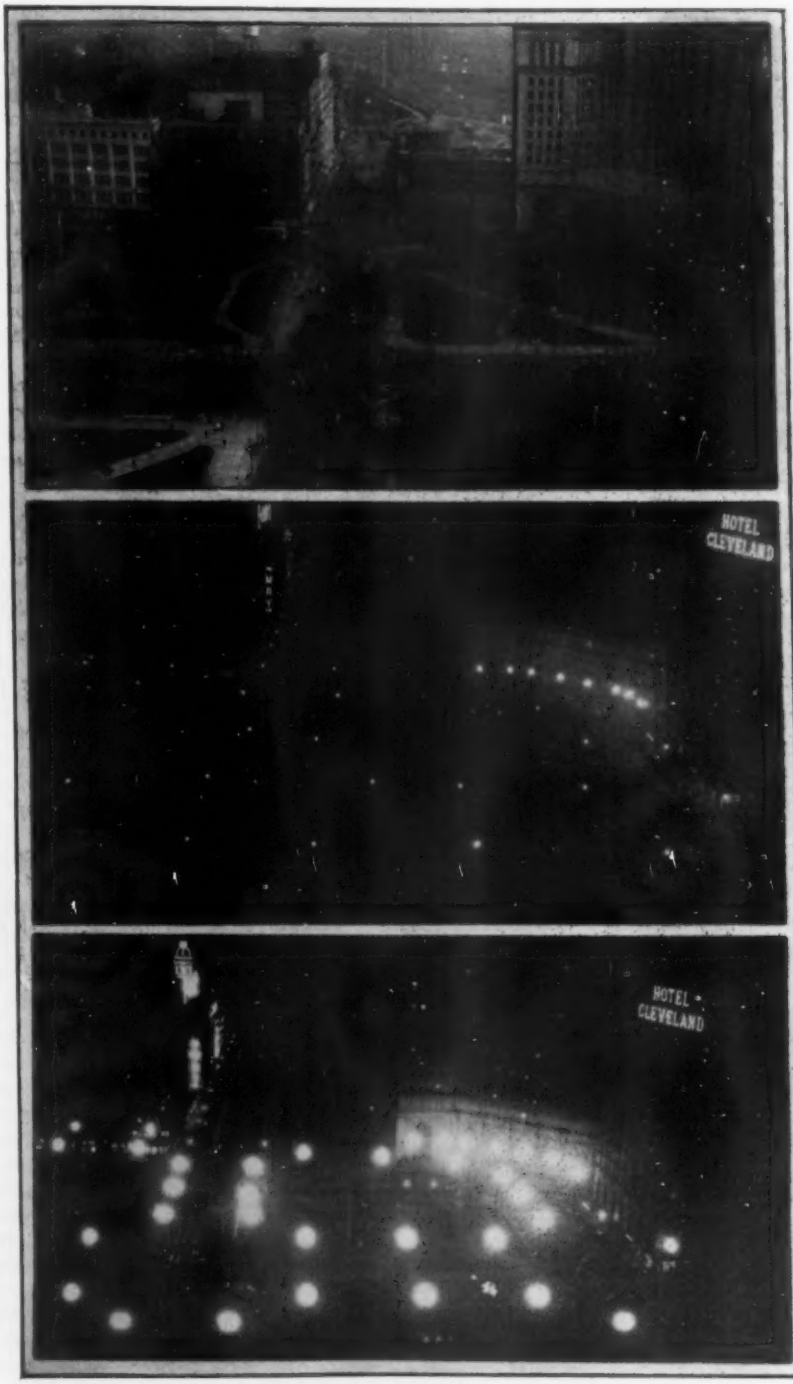
Portland cement concrete pavement is the popular pavement for heavy traffic through rural areas.

The results of the Bates Road Tests form the basis for determination of pavement cross-section.

Proportioning of materials on basis of water-cement ratio strength law is gaining in favor.

Investigation of the results of the use of reinforcement and the spacing of expansion joints at different distances apart should be continued.

New Lighting Installation Makes Great Difference in Cleveland's Public Square



THREE VIEWS OF THE OPEN AREA IN THE BUSINESS CENTER OF CLEVELAND, OHIO
The view at the top shows the Public Square in daytime, looking south. The new union railway terminal building is at the corner of the square to the right; to its left appears some of the construction work in progress. The two night views are taken from the same point, the one in the middle showing the old lighting, and the one at the bottom the effect of the new lighting installation

A Practical Plan for Providing Village and Rural Fire Protection

Suggestions as How to Organize, Finance, Equip and Maintain a Rural Fire Company

1. Arousing Public Sentiment

AT the outset a committee of four or five enthusiastic workers is formed to start the project. This preferably should be done just after a bad fire, when the citizens are in a receptive mood. To build up public opinion, the newspapers are induced to conduct strong editorial campaigns for rural fire protection. Then a public meeting is called, at which the committee should endeavor to secure the presence of every person in the community.

The meeting should be held at some central town or village which logically might be selected as the headquarters of the proposed rural fire company. If possible, a town which does not have a fire company should be chosen; then the committee can spread the idea that the meeting is called to organize a fire company for both rural and town protection. This idea, when properly emphasized, should bring out a far larger crowd than if rural fire service alone is stressed. Moreover, this assists in obtaining the moral and financial support of business and professional men, as well as that of the farmers.

A small town often will be very satisfactory for the station of the fire company. Successful combined rural and town fire companies have been organized in villages of less than a thousand population.

2. Organizing the Company

Volunteer firemen from a town nearby may be invited to the meeting to speak and to answer questions. They should wear their uniforms and may bring with them a reserve fire truck or engine for display. The nomination of a chairman thoroughly informed on the purpose of the meeting should be made certain before the meeting. This chairman opens the proceedings by calling on one of the visitors to speak on the need of a fire company and explain how it can be organized. In addition, various local men who support the proposal are called on. Motions for organization and for the election of president, vice-president, secretary, treasurer, chief, and assistant chief follow.

Nomination of the proper men for all offices should be prearranged by the committee, usually by having a nominating committee appointed. A man of known business ability and common sense, who can adjust difficulties and keep the members interested, should be chosen as president. The chief must be a real leader, able to enforce orders, for without centralized authority at a fire, everyone will be giving contradictory orders while the building burns. The chief should live near the engine house, and his business should permit him always to be within call. A rural mail carrier or a traveling salesman obviously would not do. Elections over, the president next should declare a ten-minute recess to permit all who wish, to join the fire company as active or honorary members. Then a committee on constitution and by-laws is appointed to report at the next meeting.

The chairman tactfully but firmly should suppress any discussions or arguments over details. More than one organization meeting has broken up in a controversy over the question of whether the engine should be owned by the town, the county, or the firemen; where the engine house should be built; how a water-supply should best be provided; and the like.

3. Raising the Money

A representative of some manufacturer of fire engines may be asked to the meeting, and as soon as the roll is signed this man should speak on types and cost of apparatus. Of course, no purchase should be contemplated until other manufacturers have been interviewed or their estimates obtained.

With this information before the meeting, someone should move that a certain sum be raised and offer the initial subscription. Several others should be ready to follow. Once started, the subscriptions should mount fast. Before the meeting is adjourned, it is suggested that a finance committee be appointed to raise the rest of the money and recommended the purchase of apparatus.

Experience has proved that mere verbal pledges do not buy fire engines. Therefore, at the meeting every man who has promised to give should be asked to sign a pledge blank such as the following:

Date

In consideration of subscription of others, I hereby promise to pay $..... *to the Fire Company, for the purchase of fire apparatus, etc.; one-half to be paid within* 10 *days, and the remainder within* 60 *days.*

Signed

The blank may cover a two-year period, with five payments. Fire engines usually can be purchased on installments with an initial cash payment of about 25 per cent of the total cost. It is essential to have the blanks printed beforehand and use them at the meeting. More money can be raised by sending a committee around among the audience with these blanks than by depending on voluntary offers to subscribe.

Publication in the newspapers each week of a full list of contributors to date, with the amounts subscribed, is very important. It insures the maximum amount from every giver. In addition to printing the list, the newspapers may receive subscriptions, often bringing in contributions from persons who have not been reached by the committee.

The Volunteer Fire Department Problem

How a rural fire department may be organized and how it should be operated when once established are questions of prime importance to small communities in every section of the United States.

The accompanying plan for the starting and maintaining of a rural fire department is offered by the National Fire Waste Council, as a basic pattern for those undertaking such a task. This particular plan, although necessarily general in nature, has proved successful in actual operation and consequently is something more than mere theory. The individual community no doubt will find it advisable to modify or expand certain of its features, and the plan is offered with that understanding. It is published here as it appeared in a pamphlet issued recently by the Council under the title of "The Rural Fire Department."

Since the pamphlet describes also several examples of successful rural fire departments now in operation, some of THE AMERICAN CITY'S ***readers will probably wish to peruse the complete publication. Copies may be obtained from the Agricultural Committee, National Fire Waste Council, 1615 H Street, Washington, D. C.***

The drive for funds is organized systematically. From the tax roll or the telephone book, lists are made up and assigned to committee members. It may or may not be possible to obtain county, state, township or village appropriations for the project. In some communities experience has been that it is inadvisable to ask for any tax money to be used in purchasing the engine, as there may be legal difficulties in appropriating public funds to a private corporation.

The engine should be owned by the fire company, not by the town or the county. It is human nature to take better care of our own property than of something that is not ours, and volunteer firemen are intensely human. Moreover, the firemen will work much harder to raise money to buy their own engine than one which is to be the property of the town. And, finally, the town rightfully may refuse to let the engine answer rural calls because of insurance or other regulations; but if the firemen own it, they will be able to answer all the "business" that comes in.

Each solicitor should be ready to answer objections. One often met is: "Oh! I'm too far out; everything would be burned before the engine could come." It is significant that the first call for one country engine was from a man who had used this very objection. His farm was twelve miles from town, his garage was burning, and his house was in the path of the flames. In twenty minutes the engine was playing on the fire, and a very valuable home was saved. Farm buildings usually are closely grouped. If one burns, all are likely to go. Nevertheless, a company often may run twenty-five or thirty miles on call and arrive in time to save some of the buildings. The rural fire companies listed elsewhere in this booklet can furnish many examples of accomplishment. Letters from them will answer such objections.

To the objection that there is not enough water on the farm to do any good, one answer is: "Where water in streams is available within five hundred or a thousand feet of the buildings, a dam can be constructed, thus giving additional water-supply." Another answer is: "The engine carries double chemical tanks and extra charges. We can keep a stream going as long as necessary, by refilling one tank while the other is in use."

4. Selecting the Apparatus

A committee should interview salesmen and select apparatus. It is not the purpose of this report to give detailed advice and instructions on the apparatus and equipment required to fit out the rural fire department properly and efficiently for community service. For this the reader is referred to the report on Rural Fire Departments prepared by the Farm Fire Protection Committee of the National Fire Protection Association, 60 Batterymarch Street, Boston, Mass. Every local committee appointed to purchase apparatus should secure a copy of that report and make a careful study of it before meeting equipment salesmen. The recommendations made therein should be followed carefully for they are the result of the best experience and research in this field.

Here are a few points to remember:

a. High pumping power is not so necessary in the country as in a city. Usually a capacity of 300 gallons a minute will answer, although 400 or 500 gallons a minute is preferable.

b. The pumps must be capable of handling all sorts of water—muddy, gritty, or even salty.

c. A two-tank chemical equipment and containers for extra charges of soda and acid or their equivalent in a booster system are necessary. Some engines use a booster system in addition to a chemical tank. This is a by-pass arrangement by which a small stream of water can be pumped through the chemical hose. An ordinary well can supply such a stream for a long time.

d. If no water is available except from wells, a full-sized pump with regular fire hose is useless. A 300-gallon engine will suck an ordinary well dry in half a minute. Under such circumstances, a chemical engine is best.

e. If there is water, 40 feet (4 lengths) of suction hose and 1,000 feet of standard fire hose, with proper nozzles, should be included as equipment. The amount of hose will depend on the capacity of the hose bodies on the engines.

f. One extra tire and rim, tire chains, heavy rope, and two shovels should be carried.

g. Ladders, axes, hand-extinguishers, engine-siren, lanterns, crowbar, etc., usually come with the apparatus. They should not be overlooked.

5. The Engine House

The engine should be kept in a central location from which good roads radiate in all directions, and a number of the firemen must live near enough to hear the alarm day or night. During cold weather, a fire engine must be stored in a heated garage to prevent the chemical tanks from freezing. Some such storage place should be provided before the engine is delivered.

A fire alarm should be installed with someone, perhaps a druggist or a telephone operator who is on the job all the time, to call the firemen when an alarm comes in. The person who receives the alarm must be instructed to get the exact location of the fire and all other details. If only a few of the firemen live within sound of the alarm, the telephone operator should have orders from her district chief to call up other firemen as soon as she has sounded the alarm.

6. Maintaining the Equipment

An annual maintenance charge for soda, acid, gasoline, oil, tires, repairs, and the like, must be provided. In a few years the hose will have to be renewed, and the engine motor overhauled or replaced. Firemen need rubber coats, boots and hats to protect them from the spray when fighting fires, and they should have fleece-lined coats, warm gloves and caps for protection when driving in severe winter weather. All these incidental expenses must be provided for, although they need not be included in the original drive for funds. Carnivals and entertainments, if properly conducted, will raise the money. In some instances the town and county authorities take care of such expenses.

7. Perfecting the Organization

The best apparatus is practically useless without good operators. The middle-aged farmers and business men who join the company when it is organized should stay in to keep it balanced, but young men also are needed. Jumping out of bed on a below-zero night and dashing off for thirty miles in an open car would be impossible for the older men. Some young men from 20 years up should be enlisted and then drilled. At least once a month the chief and a full crew should take out the engine for a practice run.

The minimum number of active firefighters is 10; but if possible, this number should be increased to at least 25, and preferably 50 or more. Under ordinary conditions, not more than one in three volunteer firemen is available for a long-distance rural call. Some are out of town, sick, or at work, which prevents them from leaving for a period of several hours. Town fires are often out in five minutes; but because of the distance, even the most ordinary country fire will keep the men away from their work for an hour or more. It is unfair to expect a few men to answer every rural call; the duty should be divided among a large number.

Besides the active members, old and young, nearly every fire company has a large number of "honorary" members—men, women and children. They have no definite duties, and no voting rights, but show their interest by contributing a few dollars as "dues" every year and by giving moral and physical support to the fire company.

As soon as possible the fire company should be legally incorporated. Then it can hold property, and the individual members will not be liable in damage

suits. The charter of incorporation takes the place of a constitution; it specifies the general objects of the company, limits the membership, gives authority to admit or expel members, and so forth. One charter provides that "the entire management and direction of the corporation shall be vested in a board of 10 trustees, to be elected annually from among the active members of the corporation." This is a very wise provision; it prevents the irresponsible younger element from taking hasty action. But except with regard to expenditures, the trustees seldom should interfere with the action of the regular bi-weekly meetings of the company.

The by-laws of a fire company usually make a clear distinction between the duties of the civil and the fire officers. The civil officers—president, vice-president, secretary, treasurer, and the other trustees—manage all the financial business of the company. The chief and assistant chief are responsible for the fire apparatus. They take command at fires and fire drills, see that the apparatus is kept ready for use, and order necessary repairs. If there is only one engine, these elected fire officers are sufficient; but the chief is authorized to appoint several non-commissioned officers—three or more engineers and enginemen (chauffeurs), chemical tank men and police (older men, sworn in as deputy sheriffs to keep order at fires). If there is more than one engine, more officers are necessary, of course.

When an alarm sounds, the first engineer or engine-man to arrive drives the first engine, assuming the company has more than one engine; the second takes the next; and so on. As soon as enough men for a crew assemble, the chief or assistant chief takes command of the first engine and orders it to start. No engine should leave without carrying an officer. In the absence of regular fire officers, the senior engineer or engine-man assumes command. No one but an engineer or engine-man is permitted to drive or operate an engine except by the express orders of the senior officer present.

At a fire the senior officer gives the orders and everyone is expected to obey. Many a volunteer fire company has wrecked itself because the chief was not enough of a leader to make himself obeyed. But the real test comes on the return to the engine house when the members wish to hurry home to tell about the fire, leaving the engine without care or attention. A squad should stay to recharge the chemical tanks, refill the engine with gasoline and oil, drain and dry the hose, put new charges of chemicals in the containers, and do other necessary things. Each fireman may be required to "sign in" at the engine house on his return from a fire if he is to receive credit for attendance at that fire. A man who is absent from three consecutive fires should be required to give an explanation or resign.

A chaplain and a surgeon may be elected annually. The chaplain looks after the moral welfare of the company, visits the sick or injured, assists the president in ironing out troubles, and preaches an occasional sermon to the members. The surgeon gives first-aid to the injured at fires.

8. Maintaining Interest

A volunteer fire company that does nothing but fight fires will soon go to pieces. Calls may be infrequent, so other activities must be devised to maintain interest.

It is customary for volunteer fire companies to conduct annual carnivals late in the summer. Properly managed, a carnival may net from $2,000 to $5,000, but the real value of the carnival is in the company spirit it arouses. One evening may be given over to a parade, with several silver cups as prizes for best appearance in line, most men in line, company coming from the greatest distance, and so on. One officer of a rural company writes: "My own company wears a very smart blue uniform, with silver buttons. We spend the winter in military drill, under the charge of a National Guard Officer, and we usually win the cups." This drilling and parading keeps up interest and helps discipline.

A comfortable meeting-room with books, games, pool tables, and other equipment should be provided. This keeps the members together and holds their interest. Many companies organize bands.

If the company has difficulty in raising money and getting recruits, the aid of local newspapers should be obtained to interest the public in their fire company. All activities should be featured on the front page of the local papers. These may include the organization of a women's auxiliary, annual awarding of "service stars" at the local theater to the men who have served five years as members, Memorial Day parade, presentation of a flag, and the like.

9. Pitfalls to Avoid

a. Attempts to save money by getting makeshift equipment, hand-extinguishers, fire pails, or even hand-drawn chemical tanks, should be avoided. If a company fails at a fire, it is sneered at. The result is that the members drop out. A company with makeshift equipment is ashamed to attend parades or hold carnivals in competition with companies having real fire engines. It is harder to revive a dead company than to create a new one.

b. The young men should not be forbidden to take a reserve engine to three or four parades each summer. To be left with partial protection for a few hours is less serious than to be left with an uncared-for engine and a disbanded company.

c. The apparatus always should be ready for instant use. The chief and the president should keep a check on this. When a small fire broke out in one town, the engine responded and the firemen turned on the chemical tank, but found it empty. They wasted precious moments in trying it, then drove to a fire plug, hitched up, and started pumping. But soon a bearing burned out, and the engine was helpless. The oil tank was empty. Before aid could come in from another town, the little blaze had destroyed nearly half a million dollars' worth of property.

d. The regular meetings must not drift into mere routine affairs. Stagnation means death. There must be always something to discuss and to work for—more and better equipment, new uniforms, a special parade, a visit from some other fire company.

10. Organizing the County

A company can be very active in establishing other rural and semi-rural companies throughout the county. A county volunteer firemen's association can be formed to promote fellowship and interest throughout the county and remove the jealousy and rivalry which too often exist between town and country.

Such an association can work out cooperation among the different member companies. The following case illustrates this. A small town about 12 miles from a county-seat had only one engine, which could not leave the town because of insurance restrictions. A conference was held at which the town's fire company agreed to respond to all fires on the far side of it and the county-seat agreed to send an engine to the town to "stand by" until the town engine returned. This was satisfactory to the insurance companies, and fires could be reached at least 25 minutes sooner than otherwise would have been possible. Since then the entire county has been divided into districts, each district being guarded by one fire company.

11. Rural Engines in Towns

Instead of organizing a new company, it may be expedient to induce a city or town fire company to extend its service into the rural districts. Some towns give good rural service; the majority give little or none. Where there is only one engine in a town, the taxpayers cannot be expected to permit their engine

to leave them defenseless by answering an alarm miles into the county. One remedy is to have the rural people raise the money for a county fire engine and give the engine to the town on trust, to be manned by the town volunteer firemen and used at both town and county fires. The town usually will be glad to get it on such terms.

Near a large city with a paid fire department the problem is entirely different. Sentiment must be aroused among the citizens until the council or the fire commissioner is persuaded to issue orders for certain companies to respond to rural fire calls. But this may not be very satisfactory. City engines are fitted for hydrant service, with short suction hose; paid firemen are trained under city conditions, and may not be resourceful in combating rural fires. A farm community should organize its own fire company and not depend on service from a large city.

Angle or Parallel Parking?

By HAROLD H. DUNN

THE BEELER ORGANIZATION, ENGINEERS AND CONSULTANTS, NEW YORK

MUNICIPAL authorities are often called upon to decide which parking plan will best serve the people of the city as a whole and provide for the most economical use of its principal thoroughfares. In making such a decision all the facts should be considered in a purely disinterested manner. It is well to remember that the primary purpose of streets is to provide a way for the free passage of the public, and anything which impedes that free passage unnecessarily is a nuisance. This view is freely expressed by the courts and was one of the fundamental considerations forming the basis of the report of the National Conference on Street and Highway Safety which was made in May, 1928.

What then, constitutes a necessary impediment to traffic movement? Obviously, opinions on this point will differ. Building operations may reasonably necessitate some obstruction of the street; merchants should have the right within reasonable limits to load and unload merchandise and supplies; and the stopping and standing of a private vehicle when the owner has reached his destination is necessary to the proper use of this vehicle. However, these uses are necessary in varying degrees, and, if they seriously interfere with the use of street areas for moving vehicles, they should give way to the primary use. In the final analysis the decision must in fairness be such as to benefit the greatest number of people.

This problem usually presents itself in connection with a definite portion of some business thoroughfare. A typical case is that of a city having a population of 250,000 and an automobile registration of 50,000. The principal business thoroughfare has a paved roadway 60 feet in width and blocks 260 feet long between building lines. Along nine blocks of this street through the heart of the business section it has been the practice for several years to park automobiles at an angle of 45 degrees to the curb in marked spaces.

Angle Parking

The relative effect of angle and parallel parking plans is shown by Figures 1 and 2. Figure 1 depicts angle parking in a typical block of the street described in the foregoing. In drawing this diagram, trucks and passenger automobiles of varying sizes approximately typical of average conditions are shown parked at an angle of 45 degrees to the curb on both sides of the street. It is assumed that cars are parked in spaces 8½ feet in width, which are marked on the pavement, and that all of the curb length between building lines is used. Under these conditions it is shown that a maximum of 21 cars can be parked on one side of the street in each block. The 9 blocks in question would therefore accommodate a maximum of 378 cars.

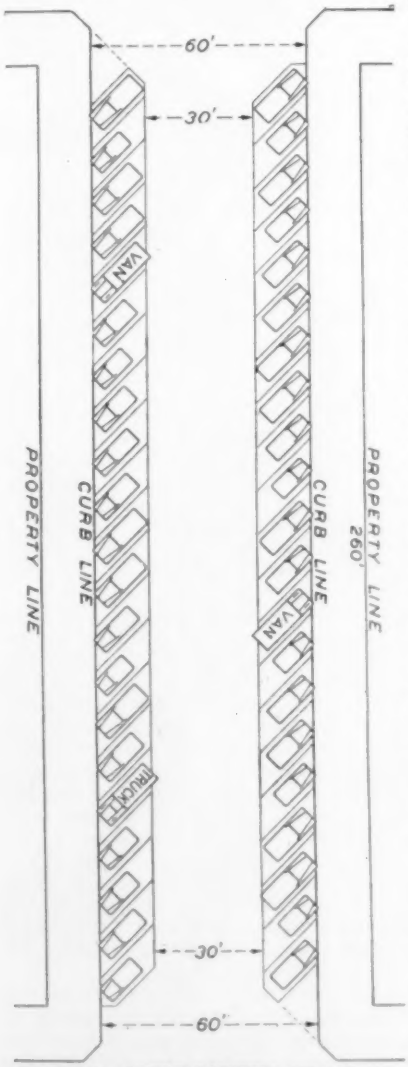


FIGURE 1.—ANGLE PARKING ON 60-FOOT ROADWAY

Leaves 30 feet of roadway clear for moving traffic. A 260-foot block accommodates a maximum of 21 cars on each side

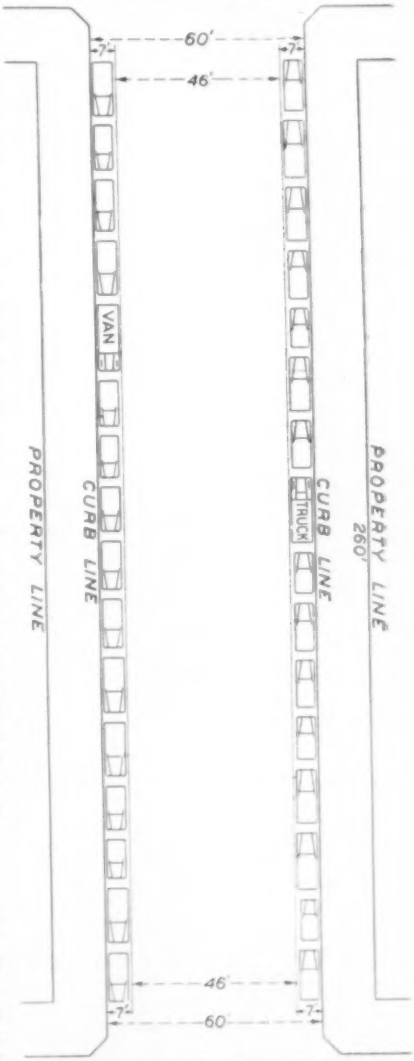


FIGURE 2.—PARALLEL PARKING ON 60-FOOT ROADWAY

Leaves 46 feet of roadway clear for moving traffic. A 260-foot block accommodates a maximum of 16 cars on each side

Normal restrictions on parking in front of fire-hydrants, at the entrances to public buildings, theaters and some stores, and obstructions due to building operations, will reduce this figure by about 25 per cent, so that in practical operation angle parking will accommodate about 284 cars in the 9 blocks.

Parallel Parking

Parallel parking in the same typical block is shown in Figure 2. The trucks and passenger automobiles shown in this diagram are the same as shown in Figure 1, and it is assumed that they are parked with their wheels not more than one foot from the curb. A space of three feet has been allowed between the front and rear bumpers of adjacent cars, to permit of their being maneuvered in and out of parking places. As in Figure 1, all of the curb length between building lines is shown in use, and this diagram therefore represents maximum conditions. It shows that under these conditions 16 cars can be parked parallel to the curb on one side of the street in each block. In the 9 blocks, therefore, a maximum of 288 cars could be parked. With the same allowance for parking restrictions as was made in connection with the angle parking plan, the maximum would be reduced to about 216 cars.

Angle parking accommodates about 68 more cars at one time in the 9 blocks, than parallel parking. If parked cars were changed each hour during 10 hours of the day, 680 additional cars could be accommodated daily by the angle parking plan. This represents but 1.36 per cent of the 50,000 passenger cars in the city.

It is not known what proportion of the 680 possible additional cars would represent the vehicles of customers of the retail stores. Time limitations on parking are difficult to enforce. Not infrequently, too, many spaces are occupied by delivery trucks or by the cars of owners or employees of stores. Surveys made by merchants in a number of cities show that the great majority of the customers of retail stores are brought there by public transportation vehicles.

A Marked Difference in Street Space Used

There is a marked difference in the amount of street space devoted to parking under the two plans. This also is shown by Figures 1 and 2. The width of the roadway from curb to curb is 60 feet. With angle parking at 45 degrees, shown by Figure 1, the roadway left open to traffic is reduced to 30 feet, which is theoretically sufficient for three streams of moving traffic. Owing to the varying lengths of vehicles, the rear line of parked cars presents a ragged wall at the right side of each stream of traffic. In order to clear this ragged line and at the same time be on the lookout for parked cars backing out, drivers must proceed with caution if accidents are to be prevented. Under these conditions moving traffic is practically limited to two lanes. With parallel parking, on the other hand, it is shown by Figure 2 that 46 feet of clear roadway would be open, allowing four traffic streams free to travel at a brisk rate between the comparatively smooth lines of parked vehicles. Parking at an angle of 30 degrees with the curb provides space for no more automobiles than parallel parking and leaves only 3 feet more roadway for moving traffic than 45 degree angle parking.

From the standpoint of street space occupied by parked vehicles under the two plans, it is notable that the 30 per cent additional capacity provided by 45 degree angle parking consumes a street area double that required by parallel parking. Parallel parking requires 14 feet, or less than 25 per cent of the width of the street; while angle parking requires 30 feet, or 50 per cent of the street. In other words, the additional 68-car capacity consumes a street area 16 feet wide throughout the length of the 9 blocks, which if devoted to moving traffic would provide space for two additional traffic streams with a combined hourly capacity of approximately 2,000 cars.

The volume of traffic that could enter the business section would obviously be increased under the parallel parking plan with its four lanes for moving traffic, and greater freedom of movement than under the angle parking plan.

Summing up, it is found that angle parking in the 9 blocks provides about 30 per cent greater capacity than parallel parking, an additional capacity of 68 automobiles at one time. However, angle parking limits the width of roadway left open to moving traffic to 30 feet, as compared with 46 feet with parallel parking, and confines moving traffic to two lanes, whereas the parallel parking plan provides room for four lanes. The volume of traffic which can enter the business section is cut approximately in half by angle parking.

Tennessee Studies County Consolidation to Reduce Government Costs

A REDUCTION in the number of counties in Tennessee has commended itself to students of the problem of reducing government costs in that state, the idea probably being prompted, according to a recent account by John Manning, of Vanderbilt University, in the *American Political Science Review*, by the startling fact that county government in Tennessee costs nineteen times the amount of state government.

There are two methods by which the desired reduction in the number of counties and the corresponding reduction in cost of government can be realized, it is pointed out: first, the natural absorption of a small county, or of several small counties by a larger county; and, second, the consolidation of all counties into a smaller number of units by legislation or constitutional amendment. The first is being worked out, and the second is being considered for Tennessee.

"In 1919 two counties consolidated; in 1927 the county courts of two counties agreed to a consolidation, and a measure requesting permission to consolidate will be presented at the next Legislature; and two state officers have presented a plan for redistricting the state, reducing the number of counties from 95 to less than 50. To some observers these are startling facts. At all events, they show that some attempt is being made to explore the 'dark continent of American politics.'

"In 1919, Hamilton County, with Chattanooga as the county-seat, absorbed James County, the Legislature granting its permission upon the request of the latter and the acquiescence of the former. This absorption of a small county by a large one has proved successful. The tax rate in James County has been cut in half, and at the same time improved roads have increased from less than 5 to over 45 miles, and schools are now in session eight and nine months, as compared with four months during the year before the consolidation. In general, the county is in much better condition than it was before.

"Because of this successful experiment, Meigs County, which borders Hamilton on the north, held a joint county meeting with Hamilton last year, and it was agreed that the two counties should sponsor a bill in the next Legislature to allow Hamilton County to absorb Meigs. The tax rate in Meigs is now $4.00, while in Hamilton it is $1.40.

T. R. Preston, chairman of a state tax commission recently appointed by the Governor, asked A. L. Childress, State Tax Superintendent, the report states, to work out a plan for county tax reduction for the state as a whole, and the plan so worked out proposes the consolidation of the 95 counties into 11 units, comprising an average of 8 or 9 counties each, and each grouped around an important town. Anticipating many objections to so drastic a reduction, and as a measure of expediency, Mr. Preston suggests an initial reduction to about 50 counties, this to be accomplished through the method of absorption as in the case of Hamilton and James Counties.

"Under the present arrangement of counties, each of the 95 units supports, on an average, 20 principal officers, costing the average county some $200,000. For the total number of counties, this means 1,900 chief officers and an annual expenditure for this item alone of $19,000,000."

The Efficiency of Settling Tanks in Sewage Treatment Plants

By M. B. TARK

THE function of every settling tank is to remove as large a proportion of the solids as possible, and the percentage removed over a period of twenty-four hours, or multiples thereof, of sewage flow, is the ultimate standard. On account of considerable variation in the composition of the sewage at different places different methods have been used for the determination of the settleable solids. So far, the method of making this test has not been included in the standards of the American Public Health Association, but the procedure described below has been proposed.

Tentative Test for Settling Solids

A one-quart sample of the effluent and influent is taken every thirty minutes and put into a one-gallon bottle so that it will be filled in two hours. After shaking, a sample is taken from the influent composite sample for standard analysis by the Gouch crucible. The contents of the bottle are then allowed to settle for a period corresponding to the detention period in the tank. Samples of the supernatant water are then taken and analyzed. The corresponding samples of the effluent, allowing for the period of detention, are also analyzed and a comparison made.

Some chemists take samples of the effluent only, making one analysis as soon as it is taken and the other after it has been allowed to settle for an hour.

Settling tanks may be divided into three classes—(1) primary tanks, (2) final tanks for the effluent from sprinkling filters, and (3) final tanks for the effluent from activated sludge plants.

Continuous-Flow Tanks

The settling of sewage in primary tanks is the most common method of treatment. As all modern plants consist of continuous-flow tanks, only these will be discussed. The essential features to be observed in the design of a tank are as follows: (1) means for decreasing the velocity of flow so that the solids can settle out; (2) a zone of quietness, where the settled solids can accumulate; (3) means for removing the accumulated solids or sludge.

In order to decrease the velocity of sewage, a detention period of from 30 minutes to 3 hours is provided, and in order to utilize the tank to its fullest capacity—in other words, to obtain the highest efficiency—the flow must be distributed equally between the several tanks in a plant and uniformly across the section of each individual tank. Equal distribution of the flow between the several units can be obtained by measuring-devices or by a careful design of the influent channels.

Distribution of Flow Across Tanks

The uniform distribution of the flow across the section of a tank is much more difficult, and very little is known on this subject. Numerous tests have been made to compare the actual flowing-through period with the theoretical period, but so far no thoroughly satisfactory method has been found. The diffusion of fluorine and the difficulty of determining the quantity by color make the results obtained by this method unreliable. Salt gives better results if very large quantities are used at short intervals, but still such results are somewhat uncertain.

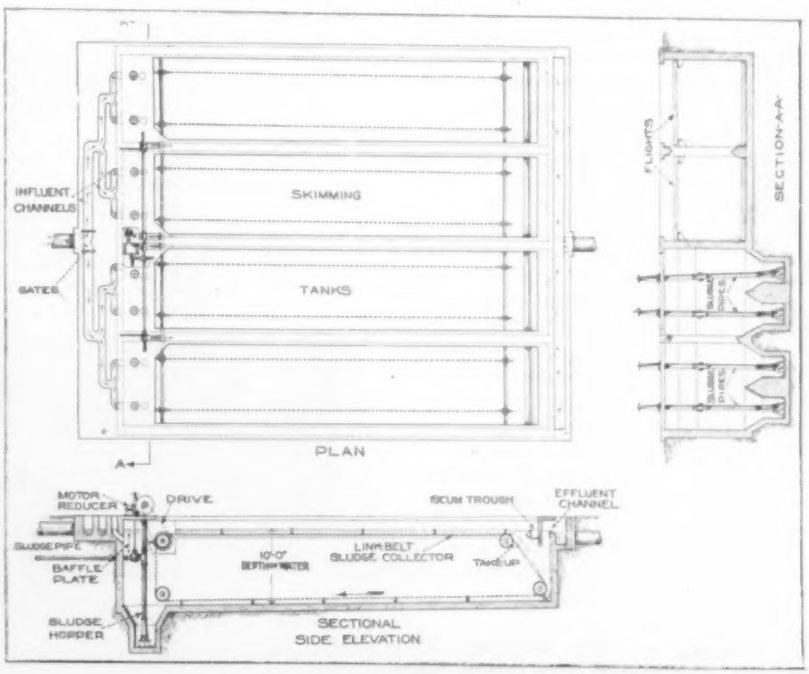
A number of tests have been made with lime, and where the detention period is short, not more than one hour, fair results can be obtained. An apparatus for determining the pH, and a number of sample bottles, are all the equipment required. It is, however, impossible to compare two tanks by the results obtained by this method, because of the coagulation and settling-out of lime with the suspended solids. There is great need for a medium for flowing-through tests. It must be cheap and non-poisonous, and its reaction should be such that an apparatus for the determination of the pH can be used in making such tests. The influence of submerged inlets, baffles and overflow weirs on the actual detention period can be ascertained by such tests.

Square tanks are the rule, and the length of the tank should not be less than three or more than five times the width. Recently, round and square tanks have been built, to accommodate a mechanical apparatus for sludge removal. The depth varies from 10 feet to 15 feet.

Rectangular vertical-flow tanks give a slightly higher percentage of removal than the horizontal-flow tanks. Their cost of construction is higher and they can be built only in small units. They are therefore suitable only for small or medium-sized plants.

Settling-Out the Fine Solids

From 20 to 40 per cent of the total solids that settle out are deposited in the first fifteen minutes of flow. The lighter solids settle out over the whole length of the tank. As their specific gravity is very little more than the specific gravity of the sewage, a zone of quietness is necessary, where these fine particles can coagulate. The V-shaped part of the flowing-through chamber of an Imhoff tank is theoretically an ideal design. It is, however, essential that not



A TYPICAL LINK-BELT SLUDGE COLLECTION SYSTEM

more than 2 per cent solids are present in the supernatant water. A larger percentage will prevent the passage of the fine solids through the slots. Currents from the digestion chamber to the settling chamber also tend to prevent the settling-out of the fine solids, so that the efficiency of an Imhoff tank is often not greater than that of other types, and frequently much less. In the Kremer-Kuschtank, the best of the vertical flow type, the settling solids travel in one direction only—downwards. The zone of quietness is even more favorable to efficient settling than that in the Imhoff tank, and the high removal of solids in this tank is due mostly to these two features. In some of the mechanically cleaned tanks little or no provision has been made for this zone of quietness, with a consequent loss of efficiency.

Removal of Settled Sludge

The removal of the settled sludge is the third important feature affecting the efficiency of a settling tank. A number of different methods are available. In plain settling tanks, after a certain period of operation, the supernatant water is withdrawn and the sludge pumped out. Considerable hand labor is required, and it is sometimes difficult to obtain men for this work. Baltimore is the only large plant using this method. If a hopper-bottom tank is used, the sludge can be pumped out or withdrawn without interrupting the operation of the tank. The inclination of the sides of the hoppers should be 60 degrees, and the construction is therefore costly.

In the Imhoff tank the sludge drops automatically into the digestion chamber, and this feature has been responsible for the great popularity of this tank.

During the last decade a number of tanks with mechanical means for the removal of the sludge have been built. The same underlying principles of design apply to these tanks as to other types. The removal of the sludge should be positive and take place with a minimum of agitation. Therefore, the speed should be uniform and low—not more than 5 feet per minute and preferably 3 feet per minute. Intermittent operation once a day in cool weather, twice a day in warm weather, will give much better results than continuous operation. Even slight agitation will cause the fine settled solids to go into suspension again. Tests have shown that a mechanical speed of 5 feet per minute for a period of thirty minutes caused a loss of efficiency of 10 per cent for 90 minutes.

The solids in the sprinkling filter effluent settle quickly and should be removed daily. A period of detention of 1 to 1½ hours is ample.

Settling tanks for activated sludge plants require even more careful design than primary settling tanks. All inclined surfaces should be as steep as possible. All dead spaces where septic action could take place must be eliminated. Many plants use an excess of air to rectify poor conditions in the settling tanks. Continuous romeval of the sludge by mechanical means is essential. The avidity of the sludge for oxygen is great, and it should be removed as quickly as possible from the tank. Very often the floc is very fine and the speed of the collector should be low, not more than 1 foot per minute. The average period of detention is 1½ hours.

Summary

Judging from tests made on a number of representative plants in the United States, a well-designed settling tank will remove from 60 to 75 per cent of the suspended solids. Some tanks have a higher efficiency, and the very high removal of 90 per cent has been noted. The sewage in all cases was ordinary domestic sewage with little or no trade wastes. Tests extended over a 24-hour period, and were made according to the standards of the American Public Health Association.

It is desirable to make a series of flowing-through tests to determine the currents in tanks. Such investigations should make it possible to cut the detention period to a considerable extent without decreasing the efficiency.

ACKNOWLEDGMENT.—From a paper presented before the American Society for Municipal Improvements, at Detroit, Mich.

Snow Removal Via Storm-Sewer Manholes

By C. RICKSECKER
SUPERINTENDENT OF STREETS, BELOIT, WIS.

THE city of Beloit, Wis., which has a population of 25,000, endeavors to keep its 80 miles of streets, of which 50 miles is permanently paved, open throughout the winter by the use of four city-owned 5-ton trucks equipped with Baker and Champion moldboard type snow-plows.

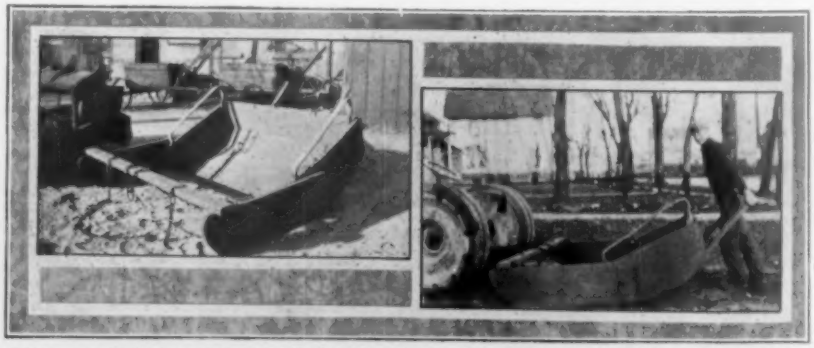
The streets of the business district are kept free from snow, however light the fall may be. This is done by the use of the old-fashioned snow scraper or scoop made of wood and constructed so that it may be readily dumped. These scrapers are team-drawn to traps in a centrally located bridge, and to storm sewer manholes two or three blocks from the bridge.

A 32-inch manhole casting is placed on the storm-sewer manhole at convenient locations. It is necessary to use one or two lines of fire-hose, usually threaded through a storm sewer lateral to the manhole to accelerate the movement of the snow. One or two power road scrapers are used to place the snow in windrows for loading the scoops.

Dragging the scoops on slippery pavements is severe work for horses, and Beloit is experimenting with a Sargent snow scraper pushed by a crawler-equipped Fordson to determine if the horse-drawn method can be improved upon.

It will be noted that very little hand labor is used in this method, namely, an operator and a helper for each truck, an operator for each road grader, a teamster for each of six snow scoops, a loader man, a dump man and two men scraping loose snow into manholes, all this force working under the direction of one foreman.

The appropriation for snow removal in 1928 was $4,500 and it was not all used. The 1929 appropriation is for the same amount.



THE WOODEN SCRAPER EFFECTIVELY USED IN BELOIT, WIS., BEHIND TRACTORS TO MOVE SNOW TO SEWER MANHOLES

Survey Aids Construction for Future Water Demand

By FRED B. NELSON

NEW YORK DEPARTMENT OF WATER SUPPLY, GAS & ELECTRICITY

IN providing and maintaining serviceable pressures in a large distribution system, the problems are many and the factors involved extremely varied by local conditions. In New York City the introduction of Catskill water, delivered by gravity at a much higher head than the original Croton and other supplies, made possible extensive improvements in pressure and changes and extensions of service zones, and involved many radical changes in distribution. These were local conditions in New York City that have added materially to the problem, common to all cities, of providing adequate distribution to meet the present and prospective demands of sectional development, population increase, etc.

In New York City the Croton supply is delivered by gravity at a head of 133 feet above sea-level at Jerome Park reservoir near the north end of the city, and is carried southward through original aqueduct lines terminating in Central Park reservoir at 118 feet above sea-level. The Catskill supply is delivered by gravity at 293 feet above sea-level at the north city line and from there is conveyed by eighteen miles of deep rock tunnel through the west side of Bronx borough and throughout the elongated island of Manhattan to Brooklyn. This Catskill supply is available for these two boroughs from eighteen riser shafts along the line of the tunnel, instead of having to be conveyed southward by trunk lines as with the old Croton system.

Service Zones

To correspond with the topography of the boroughs of Manhattan and the Bronx, the system includes four service zones,, supplied under heads suitable for service to the ground elevation included in each. These are: low service, supplied by Croton water under gravity head; intermediate service, supplied by pumped Croton, together with Catskill under reduced and regulated head; high service, supplied by Catskill gravity or full head of the Catskill tunnel; and tower service of Manhattan, supplied with Catskill and Croton pumped to about 50 feet above the available Catskill head for adequately serving the area of highest elevation.

In general, the aim has been to utilize the original Croton gravity as fully as possible, reserving Catskill for the higher areas and to save pumping. Unnecessary extension of Catskill service into areas where Croton gravity could be feasibly used by proper changes or reinforcement in the distribution system has been avoided.

A Scheme of Action

This abstract of Mr. Nelson's diversified paper on distribution problems, presented before the American Water Works Association, has been prepared to show in detail one important activity of a water department serving a rapidly developing section or community. The department must look years ahead to be certain that it can maintain domestic pressures under maximum demand conditions and that the distribution system is sufficiently interconnected to provide adequate flow for fire service. The methods employed in a sectional service are well described in this portion of Mr. Nelson's discussion.

Survey of a Low-Service Area

This feature was a factor in a recent problem of improving the supply to roughly ten square miles of east Bronx low-service area, where a tremendous post-war expansion and building development had rendered the original small supply and distribution mains seriously inadequate in maintaining serviceable pressures under the low Croton gravity head. The need was apparent for a comprehensive hydraulic or gradient survey to determine the necessary size and location of needed trunk mains or other changes required.

With the center of distribution about 4½ miles from the sources and limited by the head of 133 feet at that source, it was considered economically feasible to maintain the area below the 40-foot contour on the Croton low or gravity service. This would allow a 24-foot pressure loss in maintaining a minimum of 30 pounds at the 40-foot or highest elevation.

Methods

The hydrants selected to be used were those at important points or intersections along trunk mains and main thoroughfares and through centers of rapidly developing areas. The elevation of nozzle of these hydrants was obtained by levels. Turning points for the levels were largely taken on the nozzles of intervening hydrants, and these hydrants, locations and elevations were recorded by routes for future use in the office or by field parties. The pressures were taken with two very accurate test gages, graduated to pounds, on which readings were easily estimated to tenths. Pressures along the lines were taken at intervals of 2,000 to 3,000 feet and simultaneously with those at an important intersection of that line with its source of supply in another trunk main. The reading used at each point was the average of five one-minute readings, each one-minute reading being the mental average made by the observer. The heads computed from these pressures, added to the elevations previously obtained, gave the hydraulic gradients at these points. These gradients were then spotted on a skeleton map drawn to an approximate scale of 3,000 feet to the inch. On this map was also indicated at various points the limit of fire supply. The data thus obtained presented on such a map give a very comprehensive "bird's-eye view" of existing conditions during hours of greatest demand, and the excessive pressure losses along the various lines are conspicuously apparent. The loss between any two points obtained as described is dependably accurate for use in determining the size of the trunk main needed to correct it.

Construction Needs Determined by the Survey

In determining the location and size of main needed, other less tangible though important factors have to be estimated and used. These gradients were obtained during December. It was estimated that maximum summer-time consumption in that area, including large summer tent and bungalow colonies, would be 25 per cent greater than in December, giving pressure losses 50 per cent greater than those indicated. Also, it was assumed that at the rate of development then under way the consumption of the area might double in five to ten years. Thus the maximum near future consumption might reach 200 per cent of that existing at the time and season of the survey.

The positive data on existing conditions, as presented on the map, clearly indicated by gradient slope the location and length of needed trunk mains. The size of main was determined by assuming an increase of flow corresponding with the estimated increase in consumption, and selecting a size sufficient to carry such a flow with a loss of head reduced to an amount corresponding with good practice and safely within the limited allowable margin between the supply source and the distribution, thus not only to improve the pressure but to maintain it against reasonably distant future demands.

The recommendation for new mains, based on this survey, included 8,000 feet of 36-inch, 11,000 feet of 30-inch, and 19,000 feet of 20-inch main. It was estimated that the larger sizes recommended for supply mains would increase pressures from 4 to 5 pounds. The 20-inch main was primarily intended to strengthen the gridiron for fire supply and to so interconnect the two larger supply mains that either could serve alone in emergency.

ACKNOWLEDGMENT.—Abstract of a paper presented before the American Water Works Association.

Snow Removal in the City of Kenosha, Wisconsin

By P. J. HURTGEN

DIRECTOR OF PUBLIC WORKS, KENOSHA, WIS.

THE city of Kenosha has a land area of 4,576 acres, a population of 58,250, and 141 miles of streets, of which 80 miles are paved with a permanent type of pavement.

No attempt is made to remove snow from our streets except in the commercial districts and the principal street intersections of the city. Our city has three distinct commercial districts, known as the Downtown, North Side, and West Side areas, and from these districts we remove the snow entirely, or to such an extent as to cause a minimum of inconvenience to the traveling public. Previous to last winter, all snow that was hauled away by trucks was loaded by hand.

Our practice is to plow and scrape snow in windrows on each side of the street to the gutters, and from that point load it on trucks either by hand or by machinery, or both, depending on the amount of snow necessary to be removed.

Snow-Removal Equipment

The windrowing is done with ordinary blade plows mounted on the front end of 2½-ton trucks, and we have one mounted on a 4-ton crawler type tractor. We also operate two Wehr graders mounted on Fordson tractors with the blade attached between rear and front wheels of tractor. The latter units work successfully in snow not exceeding one foot in depth. After the snow is windrowed in the above manner, it is ready for hauling to the dump or sewer.

There has recently been developed a blade snow-plow, known as the Gettelman plow, that works very efficiently in that the snow rolls and slides along the blade and requires considerably less power to operate than most snow-plows now on the market. This plow is so shaped that it acts on the same principle as does the mole board on an ordinary field plow, by turning and rolling the snow rather than pushing it, as many of the snow-plows do.

Last year we purchased what was commonly known as a Lessmann loader, with a ¼-yard bucket for loading earth and a ½-yard bucket for snow loading. The bucket is mounted on a Fordson tractor with crawler tracks. We purchased this unit, having in mind using it for snow loading in winter and loading earth, filling trenches, and leveling earth and rubbish on our dumps in summer. This unit works very well and economically in handling earth, filling trenches, etc., but is rather slow for snow removal. As we did not have much snow last winter, it filled our needs very satisfactorily, but I should prefer larger capacity units for snow removal where a large quantity of snow is to be removed. This unit, however, should be very satisfactory for the smaller cities which cannot afford large, expensive snow-removal units. For large cities, the conveyor type of snow loader, I feel certain, would be most economical.

After heavy snowfalls and on short hauls, we have used horse-drawn ¾-yard wheel scrapers and dumped the snow into the sewers, where the sewers were large enough to carry off the snow. The dumping was done through manholes at street intersections and in the middle of the blocks.

Hauling-Equipment

Our snow-hauling equipment consists of 1½- to 3-yard trucks, and in case of severe storms, we also use our 3½-yard garbage trailers. Our hauls are usually less than five blocks. In our downtown section, we dump the snow into the lake. In the north side section, we dump into the river, and the snow from the west side is hauled on vacant lots.

Residence Sections

While no snow is hauled away in residence sections, we do, however, when necessary, plow these streets by working the snow to the sides of the streets. We operate eight V-shaped wooden plows drawn by one horse, for removing snow from sidewalks, also one broom sweeper for sidewalk work. These are operated principally to clear sidewalks leading to the schools, for the accommodation of the school children. The property owners as a rule take care of their walks. However, should the property owner fail to remove the snow from the walks in front of his premises, the Wisconsin law authorizes the city to remove it and charge it against the property and enter the charge on the tax bill. The rotary broom mounted on a Fordson tractor is used to clear the snow from the park walks and in front of city property, and works very successfully in snow up to 8 inches in depth. Along the street-railway lines, the utility uses a blade plow attached to the front end of a utility car and pushes the snow in windrows to the sides, and, where deemed necessary, the snow is removed by both the city and the street-railway corporation.

City's Responsibility

With the change of the motor car to a commercial vehicle, it has placed upon all cities the responsibility of maintaining the thoroughfares in such condition that vehicles can operate with reasonable ease and speed during all seasons of the year, including the winter months. This has made it necessary for cities to provide sufficient equipment for snow removal to meet these conditions. So rapid has been the change in the mode of transportation, that not all cities have been financially able to meet it by providing the necessarily expensive equipment required for prompt and efficient snow removal.

The public demand for high-class service is constantly increasing, and this can be provided only by increasing the city budget and creating an efficient organization to carry on the work. Transportation companies, both street-railway and bus lines, should cooperate by doing their share toward keeping the thoroughfares open for traffic by assisting in snow-removal work.

Methods for Large Cities

Just how to accomplish this is a matter that each municipality must work out for itself, as it depends largely on the intensiveness of the service and the equipment and organization available to give that service. From observations I have made, I am convinced that the best method of snow removal for large cities in the snow area is to employ plows to work the snow to the sides of the streets, and then with one of the belt or chain conveyor type machines, convey the snow into 4- to 6-ton trucks and dispose of the snow to the nearest dump. That dump may be the river, lake, sewer or vacant lot. The type of equipment necessary to pull or push the snow-plows will vary with the depth and compactness of the snow. Up to 15 inches, 2- to 4-ton tractors or trucks will handle the situation. For greater depths, up to 2 or more feet, 10-ton tractors may be advisable. For small cities some mechanical type of loader such as we employed last year will operate quite satisfactorily, using such capacity trucks as are available in the city departments. The use of steam shovels may be employed where wet snow has become solidified by freezing, but from observations, I am convinced that because of their unwieldiness they should not be purchased for snow-removal work. However, if a city is fortunate enough to have a steam shovel for excavation work, it might be profitably used for snow removal in lieu of hand shoveling.

Electrolytic Chlorine for the Destruction of Algae

By WILLIAM T. BAILEY
COUNCIL BLUFFS, IOWA

SIR A. C. Houston was the first to notice the value of chlorine as an algicide, during the treatment of the Lincoln, England, water-supply in 1908. Dr. Hale first used it for the destruction of algae in America. This was in connection with the elimination of tastes and odors from the New York water-supply in 1921. It has been used at Davenport, Iowa, Omaha, Nebr., Kansas City, Kans., and other plants with very good results.

The Council Bluffs city water-works depends entirely upon coagulation and sedimentation for clarifying its water-supply. This method of clarifying Missouri River water requires a very large settling basin area in proportion to the amount of water pumped. Since the water is necessarily held from four to seven days in open basins after it has become relatively clear, an ideal condition for the growth of aquatic micro-organisms is produced.

Previous to 1926 these algal growths were destroyed by the periodic dosing with copper sulphate, which is a very effective agent for killing algae, but its intermittent use was found very unsatisfactory because the growths would no sooner be checked in one place than they would be flourishing in another. Consequently, the water carried an odor mildly suggestive of "fish in a pig pen" most of the time during the warm summer months. This odor was at least partly caused by dead algae decaying on the walls of the basins or floating freely in the water, and also partly due to the myriads of microscopic animals which fed upon the plant forms. Some of these animals, such as Cyclops and aquatic earth worms, are large enough to be seen with the naked eye, and, though considered of no sanitary importance in themselves, would cause considerable complaint from water consumers should they become so numerous as to get into the mains. Bacteria also increase enormously in the unchlorinated water because of the presence of this decaying organic matter. Although the odor contributed to drinking water by algae is very undesirable, the unsightliness of a grayish-brown mass of decaying algae is just as undesirable. Either will produce a very unfavorable psychological effect on persons visiting the plant.

Realizing that the most rational treatment would be to destroy the algae, if possible, as they enter the basins, so as to give them no chance to live and multiply there, Dr. Thornell conducted a test of the use of liquid chlorine at the river plant coagulant house in the summer of 1926. He found that the use of from 0.8 to 1.0 part per million of chlorine would almost completely stop the growth of algae on the settling basins and greatly inhibit their growth on the clear-water basins. The chlorine also caused the old growths to loosen from the walls of all the basins.

Electrolytic Cells Installed

After due investigation it was decided that the electrolytic cells were preferable to liquid chlorine, inasmuch as users of these cells claimed greater bacterial efficiency, cheaper chlorine, easy operation, and reliability for the cells. Also, the storing of a car of salt seemed an easier matter than handling chlorine cylinders.

These cells were put in operation in the fall of 1926, and were used during the summer of 1927 by Dr. Thornell, with very good results so far as the prevention of algae growths was concerned. Dr. Thornell says that some of the blue-green algae, such as Microcystis, persisted as thin, plaster-like bands on some of the vertical walls at the river plant, and that some of the short, bright-green filaments were able to cling to the walls of the two smallest basins where strong vertical currents were produced by the water entering the reservoir. This he attributed to the free exchange of carbon dioxide and oxygen, making these points particularly favorable to the growths of these algae. However, the long filamentous green or yellow-green growths, which were previously found on the sloping walls, were absent. The free-floating forms such as diatoms seemed to be absent also.

1928 Treatment Generally Successful

A bright-green filamentous form, Stigecolonium, made its appearance in the clear-water basins in February, 1928, before the basins were entirely free from ice. But none of the blue-greens or diatoms, which are much more apt to produce odors than is Stigecolonium, appeared before the last of April. Since the temperature of the water was about 50° F., we waited until the temperature was above 60° F. before starting the chlorine cells, because of danger of producing chlorine tastes in the colder water. In the meantime, copper sulphate was used at intervals to keep down the algae. The cells when started were set to produce 0.5 part per million of chlorine, and this was gradually increased to 1.0 part per million. Within three or four days after the cells were put in operation, the growths on the wall of the river basins, which consisted mainly of Oscillatoria accompanied by diatoms and protozoa, began to loosen up and float on the surface, where they could be removed by skimming. Shortly afterwards, the growths of Stigecolonium at the clear-water basins came loose, except a small amount near the pipes, where very strong currents were produced by water entering the basins. Such growths persisted at these points

all summer. As long as the chlorine treatment was from 0.8 to 1.0 part per million and the cells were apparently producing the required chlorine, the only growths noticed were the small patches of Microcystis and Stigecolonium (presumably) observed by Dr. Thornell the preceding summer, and a small amount of Oscillatoria and diatoms.

Difficulties

At times we experienced some difficulty in determining the exact amount of chlorine added to the water from the cells. In this type of equipment the amount of chlorine produced is determined by the amperes of current passing through the salt solution within the cells. The bottom of these cells consists of asbestos paper diaphragms, which must be changed at intervals of about four weeks. As the time for changing the diaphragms approaches, we notice a slight increase in the voltage required to pass the necessary amperage through the cells. At the same time the chlorine production apparently falls below the theoretical figure. Since the turbidity of the water being treated is from 200 to 900 p.p.m., we are unable to determine the residual chlorine by the orthotolidin method. Therefore, our only check on the amount of chlorine produced is by observing an enormous increase in the bacterial count of the settled water, and the appearance of blue-green algae on the walls of the settling basins. We find that on renewing the diaphragms the voltage drops and the cells regain their efficiency. The bacterial count of the settled water is again normal, and the algal growths break loose and float on the surface, where they are removed.

Algae Inhibited with Little Chlorine

When the chlorine treatment was 0.6 part per million or less, there was considerable growth of algae on the settling basins, but very little on the clear-water basins. Microscopic examination of these growths showed that the Oscillatoria, which were predominant, were practically motionless, while they have a rather vigorous movement when growing normally, from which they get their name. With the Oscillatoria were many diatoms, chiefly Navicula, protozoa of the ciliate, flagellate, and ameboid types, many Cyclops, a few nematodes, and quite a few aquatic earthworms. At other points along the reservoir walls fairly luxurious growths of Cosmarium, accompanied by the diatoms and protozoa, were found. But at no time have there been enough algae to produce tastes or odors in the water. Neither have there been any chlorine tastes. In order to prevent chlorine tastes, we regulate our final chlorination of the water to such a rate that the water entering the mains shows a residual chlorine content of from 0.06 to 0.2 part per million after standing ten minutes. But we have never found any residual chlorine with the orthotolidin test in any of our basins excepting the one in which the freshly chlorinated water enters.

Final Chlorination

By regulating the final chlorination of water so that the residual chlorine in the water entering the mains is from 0.06 to 0.2 parts per million, we have kept the positive gas formers to a minimum in the tap water. None of the positive tubes have shown the presence of B Coli during the time we have been using the double chlorine treatment, but as soon as the preliminary chlorination was stopped, we found a large increase in the gas formers of the tap water, even when the residual chlorine content was the same as when double treatment was used. This result has also been observed at the Omaha, Nebr., water-works, and may be due to the fact that the total amount of chlorine used in the double treatment is much greater than in the single treatment.

Comparative Tests of Liquid and Cell Chlorine

Dr. Thornell conducted a comparative test to find whether or not there was any difference in the bactericidal power of the liquid chlorine and the cell chlorine, and obtained results which seemed to indicate that that of the electrolytic cell chlorine was slightly greater. His test was run over a short period of time, and therefore met with considerable criticism. These tests have been repeated this summer over a period of about six weeks, with each series of samples taken within one or two weeks after changing the asbestos diaphragms in the cells.

The accompanying table shows results obtained from these tests:

The water in leaving the mixing chamber under the coagulant house flows through two pipes of the same size and at the same level into the third settling basin. One of these pipes directs its flow of water eastward, and the other turns its flow southward by an elbow on its outer end. Samples were obtained near the outer end of each pipe where the water had not received an opportunity to mix with the water from the other pipe. In order to check the amount of water flowing through each pipe, several samples were taken when the chlorine from one cell was being discharged into each of these pipes, while the discharge from the third cell was added to a solution of ferrous sulfate which was applied at the point where the raw water enters the mixing chamber. Since there is no appreciable difference in the bacterial count and B. Coli content, I have assumed that approximately equal amounts of water passed through each pipe. The cell chlorine was discharged into one pipe and the liquid chlorine into the other.

The first series of samples was taken while treating each half of the water with one part per million chlorine, but air was mixed with the liquid chlorine by taking it from the Wallace & Tiernan chlorinator with a pyrex injector which exerted quite a strong suction on the hose. There is no appreciable difference in the bacterial counts, but 68 per cent positive tubes were found in the water treated by electrolytic chlorine to 40 per cent in the water treated by liquid chlorine and air. The B. Coli confirmations show 8.9 per cent positive tubes for the cell chlorine to 3.7 per cent for the liquid chlorine.

The second series of samples were taken while treating the water with one part per million chlorine, and without mixing air with the liquid chlorine solution. There seems to be a slight difference in the bacterial and B. Coli reductions in favor of the cell chlorine and also a difference between Series I and Series II which apparently indicates that a mixture of liquid chlorine and air is more effective than liquid chlorine alone.

A third set of results is from samples taken when the water was being treated with 0.6 parts per million chlorine and no air mixed with the liquid chlorine. Again, there appears to be a very slightly

TABLE I

COMPARATIVE TEST OF CHLORINATION OF WATER WITH LIQUID CHLORINE AND ELECTROLYTIC CELL CHLORINE

	Chlorine Treatment Parts per Million	Bacteria Per Cubic Centimeter — Lactose Litmus Agar 24 hours—37½°C			Bacteria Per Cubic Centimeter — Nutrient Agar 48 Hours—Room Tem.			Gas Formers in Lactose Broth—48 Hrs.—37½°C			B-Coli Confirmations on Eosine Methylene Blue Agar		
		Raw Water	Cell Chlorine C12	Liquid Chlorine C12	Raw Water	Cell C12	Liquid C12	Raw Water Pos. 1 c. c. Tubes	Cell Chlorine Pos. 10 c. c. Tubes	Liquid Chlorine Pos. 10 c. c. Tubes	Raw Water Pos. 10 c. c. Tubes	Cell Chlorine Pos. 10 c. c. Tubes	Liquid Chlorine Pos. 10 c. c. Tubes
I	1.0	11400	150	160	24400	150	170	23/23	54/79	35/79	23/23	7/79	3/79
II	1.0	.....	130	210	.....	190	240	.....	21/40	21/40	.....	2/40	3/40
III	0.6	10100	120	130	32000	210	230	16/16	46/108	64/108	16/16	23/108	29/108
IV	0.5	1300	65	65	12300	125	105	8/8	57/80	54/80	8/8	31/80	21/80

The bacterial counts on the treated water are averages of from 12 to 20 samples. In the gas formation and B-Coli confirmations the numerator is the number of positive tubes while the denominator is the total number of tubes planted in that series.

greater bacterial and B. Coli reduction with the cell chlorine, but not enough to be of consequence.

The last series of samples was taken while treating with 0.5 parts per million chlorine. Just before starting on this set we changed diaphragms in the cells, and added the sodium hydroxide solution formed by the cells to the water which was being treated with the chlorine from the cells. The bacterial count in 24 hours is the same, but there is a slight difference in the 48-hour count in favor of the liquid chlorine. The number of positive gas tubes and B. Coli confirmations on eosine methylene blue agar is also slightly in favor of the liquid chlorine, and is apparently a reversal of the preceding tests. But we believe that all the differences are within the limits of experimental error with random sampling and therefore of little consequence.

We could hardly conclude from these experiments that electrolytic chlorine was of greater bactericidal value than liquid chlorine, and, although its use has been successful in preventing algae tastes and odors, the cost of producing electrolytic cell chlorine compares unfavorably with the liquid chlorine.

Snow Removal in the Town of Brookline, Mass.

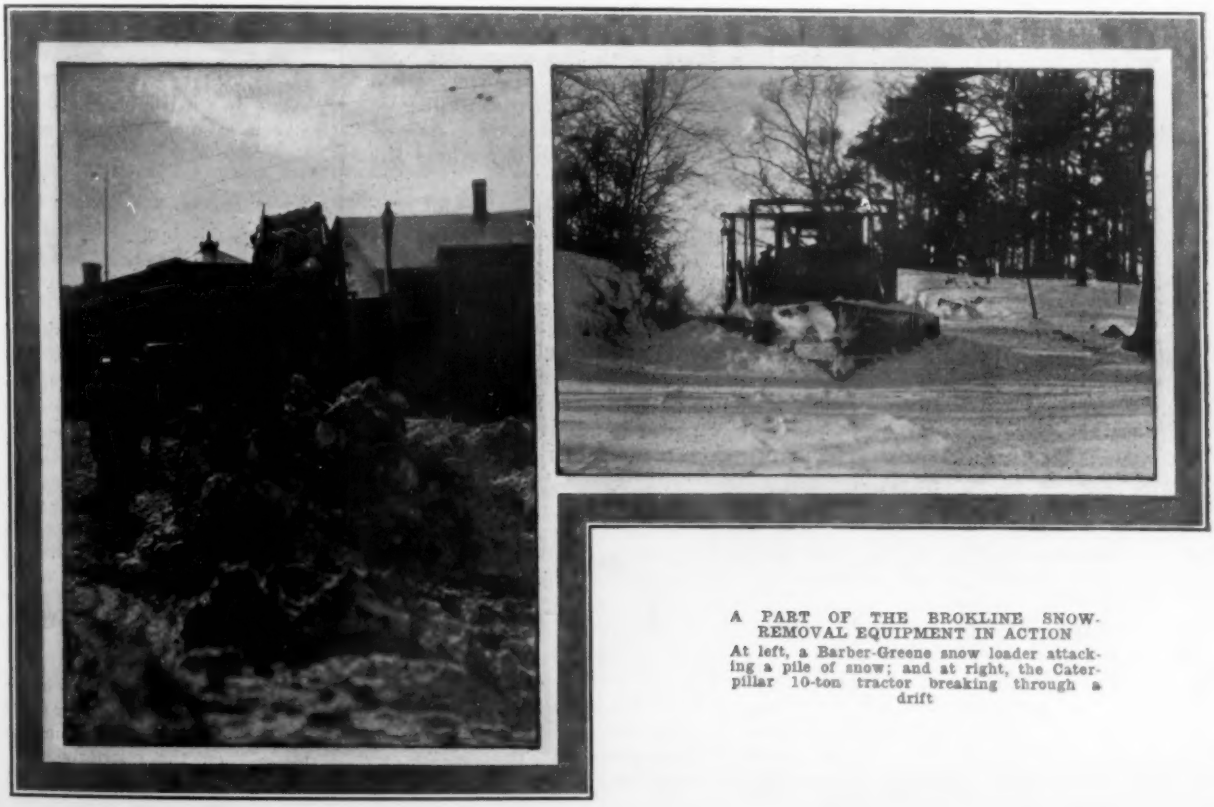
By DANIEL G. LACY
SUPERINTENDENT OF STREETS, BROOKLINE

THE system for removing snow employed in the town of Brookline functions with the same speed and efficiency as a fire department. The dispatch with which the town clears its sidewalks and streets is due primarily to the highly organized forces of the Department of Streets. Every man in the Department has a specific post or duty assigned to him, so that there is practically no lost effort in getting under way.

The town is mapped out into snow routes for plows and tractors, and sufficient equipment is assigned to each district to accomplish the work in a minimum period of time. Brookline has in its equipment headquarters modern snow-fighting equipment which is believed to be the equal of any community of its size. This equipment consists of one 7½-ton Walter Snow Fighter, one 10-ton Caterpillar tractor, one 5-ton Caterpillar tractor, four 2-ton Caterpillar tractors, seven Fordson narrow-tread sidewalk tractors, two Barber-Greene snow loaders, two sand spreaders, and approximately 25 municipally owned 5-ton Mack trucks, used for either plowing or hauling. These units are under the care of the Superintendent of Equipment, who keeps them in the same condition as the Fire Department keeps its trucks, ready for a call at any moment.

The townspeople of Brookline require a very high standard in snow removal, and are proportionately generous in their appropriation, for efficient snow removal is considered a good investment. Open roads save the wear and tear on the highways from concentrated ruts, and the merchants find that open roads mean increased business activity. For the further benefit of shoppers and merchants, the business centers of the town are completely cleared of snow by the loading machine within a few hours after the storm has subsided. In Brookline there is no waiting for Mr. Smith or Mr. Jones to shovel his sidewalk, for this is one of the few municipalities that keep their sidewalks clear at no extra expense to the citizens. This work is accomplished in the wide business districts by a 2-ton Caterpillar tractor and in the residential sections by narrow tread Fordson tractors.

The organization of the Department makes possible the clearing of 80 miles of streets and 160 miles of sidewalks as well as four business centers within twenty-four hours after the storm forces have started their attack.



A PART OF THE BROKLINE SNOW-REMOVAL EQUIPMENT IN ACTION

At left, a Barber-Greene snow loader attacking a pile of snow; and at right, the Caterpillar 10-ton tractor breaking through a drift

Service Charges for Sewers and Sewage Treatment Plants

By ERNEST BOYCE

CHIEF ENGINEER, KANSAS STATE BOARD OF HEALTH, LAWRENCE, KANS.

A SEWAGE disposal plant may be considered as manufacturing a product of little or no value out of a waste material which before this process existed as a definite liability. No revenues are produced that in any way equal the expense. Consequently, the cost of the plant and its operation must be paid out of benefits that accrue from the removal of the liability represented by the untreated sewage waste.

The most common way to carry the cost of sewage treatment is to include it in the general tax levy. There is some reason to consider this as a just and proper place for the charge, but funds must be available and the proper appropriation secured in competition with many other demands.

Sewerage a Public Utility?

If we consider that a system of sewerage exists only to give service to those contributing to sewage waste, then we should properly classify this municipal improvement with other public utilities and expect that all charges for capital and operating costs will be paid by those who are served. This view has been reflected in recent legislation in several states where provision is made by statute for the charging of sewer rentals. There are some who feel that a sewer is not properly a public utility but rather a necessity from the standpoint of public health, and, being necessary to the health and well-being of the community, should be paid for by the community as a whole. When an individual makes use of a public utility such as a telephone, electricity, gas or water, he is primarily interested in the service given by such a utility. A person not interested in having this service is at liberty to go without it. While it may inconvenience others, his unwillingness to have the utility does not create any hazard for his neighbors. With the sewer it is different. It is important that all and not a part of the sewage waste be removed from the city. The poorest as well as the most expensive property should be given service. In fact, not infrequently, it is necessary to require in the interest of better sanitation that sewer connections be made against the property owner's will. Such procedure would be unheard of with any other utility. It is more nearly comparable with fire protection service.

This comparison might be carried further. We divide our public water-supply costs and charge fire protection costs to general taxation, and the cost of water-supply service to the consumer, in proportion to the use he makes of this utility. It would seem that the principle which has been followed in the past of paying for sewers and sewage disposal improvement by general tax levy is a sound one, but it may be that after the community has as a whole provided this service, it is proper that those who use the sewers should pay for their maintenance and operation, and possibly in approximate proportion to the amount of such use.

Service Charge

The cost of sewers was formerly one of first cost with a very small item of maintenance in proportion. At present where modern sewage disposal is provided and where all or a part of the sewage must be pumped, there is an annual charge that must in some way be carried in the budget of the city. The service has undoubtedly gone beyond where all the expense should be considered as incurred in the interests of sanitation alone.

If charges are made against the use of the service rendered by a system of sewerage, there remains the problem of deciding how these charges should be apportioned. It has been suggested that, since sewers primarily serve the purpose of removing the city water after it has been used, the amount of water used is a measure of the use made of the sewer and might give a rational basis for rental or service charges.

Sewer Service Charges in Ohio

The subject of sewer service charges as a means of financing sewerage and sewage treatment was given consideration by a committee on sewage treatment at the conference of state sanitary engineers. The operation of the Ohio sewer rental law enacted in 1923 was discussed in detail in their report as follows:

"It is well to review briefly the sewer rental situation in Ohio. Seventeen municipalities are now financing their sewerage and sewage treatment works either in whole or in part out of moneys collected from sewer rentals. The smallest municipality in this list has a population of less than 600, and the largest over 150,000. The charges average about $4.00 per sewer connection per year, although they vary from $1.00 to $8.00 annually. Payment is usually made upon the quarterly plan. The manner in which the charges are

Treatment Plants Neglected in Budgets

Municipal officials and engineers interested in the problem of adequate sewage disposal are constantly confronted with the fact that sewage disposal plants built to accomplish the destruction of the objectionable characteristics of sewage wastes are frequently not operated so as to obtain the results reasonably expected. While many plants are given good supervision, in at least the average plant the operation must be considered as being the minimum attention that the city can give and yet avoid damage claims due to faulty operation. Governing bodies are usually willing to provide adequate funds for city departments when the expenditure is demanded and expected by the taxpayer of the city, but it is hard, with the many demands made on a city's financial resources, for a governing body to provide funds to dispose of sewage wastes after they are conveyed to a point where they will not annoy the residents of a city.

The demand for the installation of sewage treatment works, and later for their efficient operation, comes in most cases not so much from a sense of civic responsibility as from the demands by damaged property owners with threatened suits or from some state supervisory authority, usually the State Department of Health. Consequently, the city is quite apt to adopt or rather lapse into a policy of doing only that which is definitely required.

E. B.

made varies. The number of municipalities basing the charges upon the volume of water consumed (5) about equals the number making a flat-rate single charge per sewer connection (4). A flat rate according to the number of fixtures is employed by two, and two others have a flat-rate schedule per connection, according to the character of the premises served. Variations in amounts of charges are on account of the variations in size of the municipalities and the differences in amounts of funds attempting to be secured. For example, the $4 annual charge at Delaware (8,576) is planned to meet expenses of maintenance, operation, etc., but not to meet sinking-fund charges on the new plant. In order to include a substantial portion of the sinking-fund or replacement charges, the small city of Kenmore (12,683) charges $8.

"There seems to be a well-defined trend in Ohio and elsewhere to adopt the rental or utility idea of financing sewerage works maintenance and operation. Experience indicates that such a plan is most favorably considered and is easy to place in operation wherever a new sewage treatment works is being installed or a complete renovation is being given to an old treatment plant."

From other references we find that the estimated revenue from sewer rentals at Delaware, Ohio, will amount to $11,000 per year. It is estimated that this will be sufficient to maintain and operate the treatment works and the sewerage system as well. It will also carry the clerical cost necessary for collection. Sewage pumping is necessary, and the sewage is treated by passing it through an Imhoff tank and sprinkling filters.

Charges Permitted in North Carolina

The Session Laws of North Carolina for 1927 provide for the creation and maintenance of sanitary districts. Section 20 of that law is interesting in that it covers service charges and rates in the following words:

"A sanitary district board shall, immediately upon the placing into service of any of its work, apply service charges and rates which shall, as nearly as practicable, be based upon the exact benefits derived. Such service charges and rates shall be sufficient to provide funds for the proper maintenance, adequate depreciation and operation of the work of the district. Any surplus from operating revenues shall be set aside as a separate fund to be applied to the payment of interest on bonds, to the retirement of bonds, or both. As the necessity arises, the sanitary district board may modify and adjust such service charges and rates from time to time."

Michigan Provisions

Michigan Statutes provide that:

A city may by charter acquire, establish, operate, extend and maintain sewage disposal plants, sewers and plants either within or without the corporate limit of the city, as a utility, including the fixing and collecting of charges for service covering the cost of such service, the proceeds whereof shall be exclusively used for the purpose of the city sewage disposal system to include a return on the fair value of the property devoted to such service, excluding from such valuations such portions of the system as may have been paid for by special assessment.

In Act 320, Michigan Statutes 1927, a portion of Section 2 reads as follows:

"Such sewage disposal plant and system shall be considered a public utility within the meaning of any constitutional or statutory provision of this state for the purpose of purchasing, owning, operating, constructing and equipping such sewage disposal plant and system."

Section 2 further provides that:

A municipality may issue bonds beyond the general limits of the bonded indebtedness, providing such bonds shall not impose any general liability upon the municipality but shall be secured by revenues from the operation of the system of sewerage.

It provides also that:

The system of sewerage may be taken over and operated under a franchise as a security provision for bonds.

Section 3 provides:

"The legislative body may establish just and equitable rates or charges to be paid to it for the use of such sewage disposal plant and system by each person, firm or corporation whose premises are served thereby."

Assessment in Pennsylvania

In the 1927 Sessions Laws of Pennsylvania, Sections 2170 to 2173, inclusive, the following provision is made for the assessment of cost of maintenance and repair:

"Whenever any borough has constructed any sewer or sewer system, or has acquired wholly or partially the same at public expense, the council of such borough may provide by ordinance for the collection of an annual rental or charge, for the use of such sewer or sewer system, from the owner of the property served by it. The council may, at its discretion, in lieu of such annual rental or charge, provide for the payment by such owner of a fixed sum. Such annual rental shall not exceed the amount expended annually by the borough in the maintenance, repair, alteration, inspection, depreciation or other expense, in relation to such sewer or sewer system, and may include any interest on money expended by the borough in the construction of the sewer or sewer system. The said annual or fixed sum shall be apportioned equitably among the several properties served by the said sewers.

"Such annual rental or charge or such fixed sum shall be authorized and collected as provided by general ordinances, and, when so levied and charged, shall be a lien on the properties charged. The collection thereof shall be made and enforced in the manner municipal claims are now or may hereafter be collected.

"The councils of such borough shall execute a warrant or warrants authorizing the collection of such annual sewer rentals or charges, or such fixed sums, to the officer employed by council to collect the same. Such officer shall have the authority now vested by law for the collection of borough taxes.

"Such annual sewer rentals or charges, or such fixed sums, shall be a lien on the properties charged for the payment thereof from the date set forth in the ordinance and, if not paid after thirty days' notice, may be collected by an action of assumpsit, in the name of the borough against the owner of the property charged or by distress of personal property on the premises or by a lien filed in the nature of a municipal lien."

Special Levies in Kansas

A statute may provide that special levies may be made for maintenance and operation. For example, the Kansas law in section 12-630, Revised Statutes of 1923, provides as follows:

"Levies for sewage disposal plants.—That all cities of less than 50,000 in the state of Kansas be and are hereby authorized to levy a tax in addition to all other taxes allowed by law, not exceeding one-half mill on the dollar upon all taxable property in such cities, to be collected as other taxes and used for the purpose of maintaining and operating sewage disposal plants. Such levy shall not prevent the use of other funds available for the same purpose."

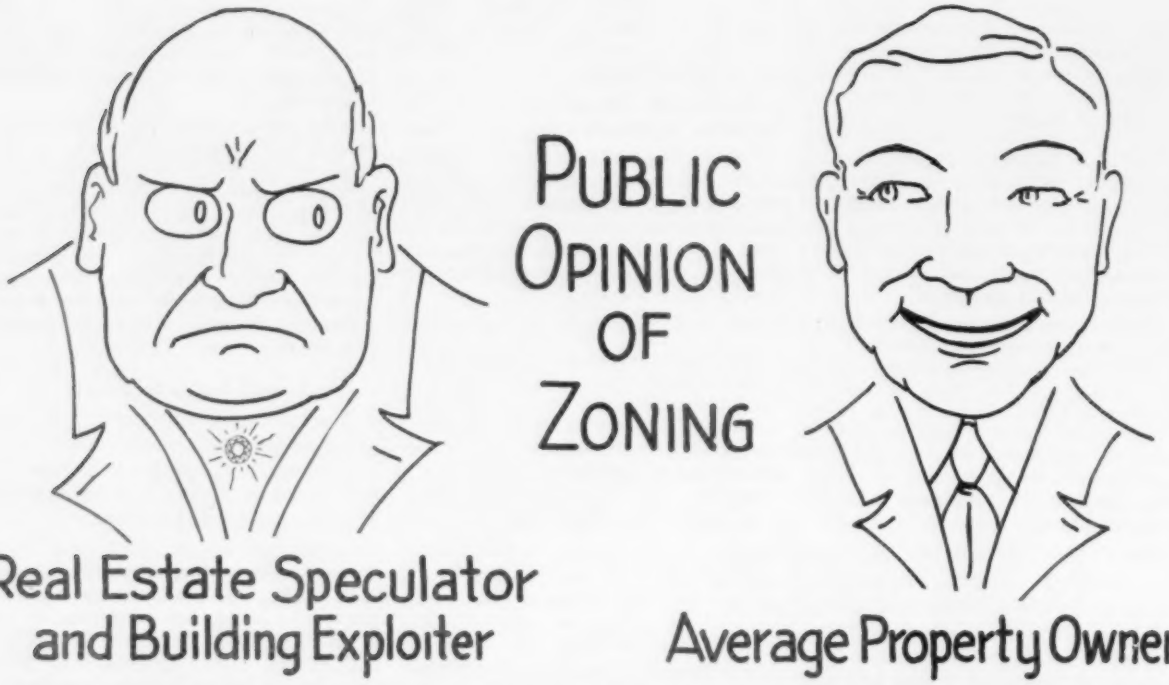
Adequate Continuing Revenues Necessary

We believe that in the future more thought will be given to the matter of providing adequate operating revenues and that some sort of service charge will be more generally adopted as being an equitable method of providing these revenues.

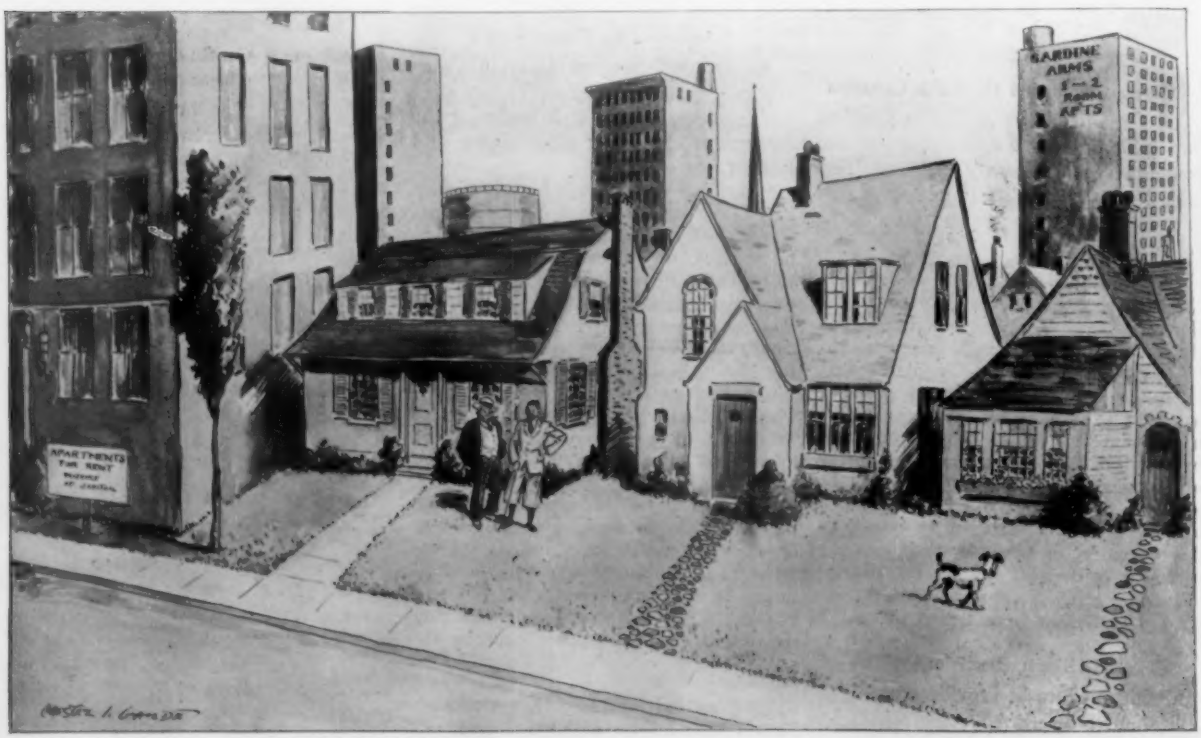
One of the principal advantages that we see in the application of a service charge is that funds can be provided continuously without the necessity of an annual appropriation. A source of revenue is provided that does not come in direct competition with other budget items that must be included in the tax levy. This is important because the public, as we suggested in the beginning of this paper, are not usually as much interested in matters pertaining to sewage disposal as they are in other budget items, and when an economy cut is made in the tax levy or funds are needed elsewhere, sewage disposal operating funds are either forgotten or so reduced as to make efficient operation impossible.

ACKNOWLEDGMENT.—A paper read before the Ninth Iowa Sewage Treatment Conference at Ames, Iowa.

Zoning Stories Told in Cartoon, Photograph, and Paragraph



CARTOON BY THE CITY PLANNING COMMISSION OF CLEVELAND, BASED ON ONE BY THE BUILDING INSPECTOR OF CANTON, OHIO



Drawing by Chester I. Garde; Copyright, The Saturday Evening Post

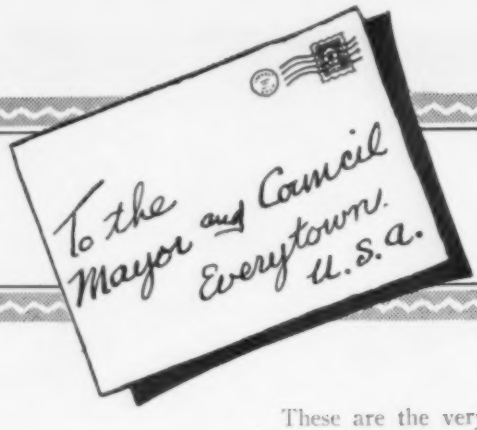
THE "GREAT OPEN SPACES" IN AN UNZONED SUBURB

Why Should Not Zoning Laws Work Both Ways?

THESE pictures of recent fires in New York and Cincinnati illustrate a condition all too common. Zoning laws in cities throughout the United States are giving increasingly adequate protection to high-class residential districts against the encroachment of public garages, oil tanks and industry generally. Are not the human beings who must live in the humbler parts of our cities worthy of protection against such risks as here shown? In the modern city is there any need for an "unrestricted" district? Should not the land adjacent to dangerous and nuisance industries be zoned against any dwelling —even the tenements of the poor?

International News Reel Photos

A MONTHLY OPEN LETTER



February 1 1929

Honorable Sirs:

LAST month we considered some necessary state legislation; but good advice, like charity, should begin at home. Have you given your local ordinances any thought lately? Especially, have you considered the importance of codification?

Down in the basement of the city hall in some cupboard or bin, I'll bet there's a whole bushel of old ordinances gathering dust. You'll chuckle to yourself as you sort them over. You could read your city's history in them. Here are several that came from that big fire you had—was it in 1918? There's a batch that date back to the 1921 housing shortage. Here are a few that go back to the unemployment of 1915. Next to law-breaking, law-making is our most inveterate pastime. Our typical citizen sits muttering as he reads his newspaper, "There oughta be a law." Fundamentally it's not a bad trait, but it fills the books with laws and ordinances about things that won't in all cosmic probability happen again in ten or maybe ten thousand years; and yet despite our industry in adding extra padlocks every time a horse gets out of the paddock, we too seldom succeed in getting 'em on the nose.

There is but one purpose in codification of ordinances, namely, to provide a systematic and orderly arrangement of the existing rules and regulations which constitute the city's body of law. The advantages to be attained by such a classification are many. In the first place, the mere putting together of the various ordinances which treat of the same subject matter will reveal glaring inconsistencies, duplications and contradictions. When your code is complete, any newly proposed ordinance will have its own logical pigeonhole, so that such absurdities will thereafter largely eliminate themselves.

WHEN such a chore is to be undertaken, you have two alternatives. It may be treated as a "paste-up" job. Some young lawyer or law clerks can be recruited and put to work sorting out musty ordinances and arranging them according to some logical scheme. This is a useful task and a necessary preliminary. But will you be content to stop there? This very work has brought to light so many stupidities and anachronisms that it cannot be done too mechanically. Obviously obsolete ordinances, such as those dealing with a particular event or the transition to a new governmental arrangement now fully in operation, can readily be discarded. They have expired by their own terms. A more difficult question is presented by those no longer up-to-date, but still law because they contained no limitation and have not been repealed. You may think this one no longer of any use; others may differ with you. Then there are the cases of outright contradictions where a repeal cannot clearly be implied or where the extent of the repeal is uncertain.

These are the very things which a codification will hereafter spare you, but they are perplexing problems when an effort is made to intelligently assemble existing ordinances. It would take a Philadelphia lawyer with an income tax training to disentangle any meaning from some of the messes you will find. Perhaps this will suggest that that's not the way to do it at all. Why split hairs trying to discover what two patently irreconcilable ordinances mean? Why not write in a new provision carefully and simply worded to say precisely what you mean? This is obviously too responsible a task to be entrusted to mere clerical assistants.

IF the preparation of a code is to be the occasion of general revision of existing ordinances, if your legal house is to be not merely scrubbed but repainted and decorated, such work must be under the supervision of a carefully chosen committee of the council, or, better still, a commission composed in part of members of the council and in part of distinguished lawyers and laymen of the community. It is no reflection upon our city council that, whether the city be large or small, it is always possible to draft for a particular task like this especially equipped citizens who could not be persuaded to undertake the regular routine of councilmanic work. The decision to revise your city's ordinances is a separable question from codification. It is quite possible to codify without revising. The latter is suggested merely because no time seems more appropriate for it.

The establishment of such a committee or commission does not imply that they should assume the drudgery of preliminary compilation or the equally laborious preparation of the final volume. This work requires competent assistants. The members of the committee or commission should be spared this and saved for the many and much more important questions of policy that will be constantly arising. If you have any hopes of establishing the policy of drawing upon citizens for special advisory service, show them that you have enough respect for them to provide them with skilled help.

YOUR committee or commission must have some scheme for arranging the material to be included. There are various ways of doing this. A good example that at least serves to illustrate what is meant, is the following:

SUGGESTED CHAPTER HEADINGS FOR CODE OF ORDINANCES*

Chapter
I. By-Laws
II. Charter Ordinances
III. Construction and Effect of Ordinances
IV. Construction of Buildings, City Planning and Zoning
V. Electrical Code
VI. Finance
VII. Franchises
VIII. Licenses and Permits

* Prepared by Earl Gill, of Gill and Fitch, Municipal Corporation Counsel, Madison, Wis., and Chicago, Ill. See 1928 Municipal Index, pp. 98-103.

IX. Offenses Against Peace and Quiet	XIV. Plumbing Code
X. Offenses Against Public Morals and Decency	XV. Public Health
XI. Offenses Against Public Policy	XVI. Public Property
XII. Offenses Against Public Safety	XVII. Public Safety
XIII. Officials, Boards and Employees	XVIII. Public Utilities
	XIX. Public Waters, Shore Lines, etc.
	XX. Public Welfare
	XXI. Public Works
	XXII. Weights and Measures

This has the merit of being both logical and alphabetical. Within each chapter there must be some method of numbering the sections and subdivisions. This may take the form of a simple numerical order, subsequent amendments being lettered (e.g., Chap. X, Sec. 9-a). Slightly more intricate, but exceedingly useful, is a decimal system. The chapters in the above illustration would be numbered 1 to 20. A decimal point should be placed after each chapter number and sections would be assigned the next two digits. Thus section 34 of chapter 13, would be designated: §13.34. New matter would be inserted by adding an extra digit (e.g., §13.341; §13.342). In a code that is at all elaborate the decimal system certainly facilitates the location of the section you want.

LASTLY, any code worthy of the name should have a good old-fashioned alphabetical index, abundantly cross-referenced, so that you or anybody else can find what you want when you want it.†

Such an enterprise should be gotten under way at this time of the year. If you put it off it will perish of desiccation during the summer. You should be getting your second wind about now. Look about you and pick out some good team workers for this enterprise, men who will be honored by the invitation and who will do an honest-to-goodness job. Above all, get a good anchor man to lead them, one who can be counted on to come through to the tape when the others are winded and have given ground. Most group jobs fall pretty much to one pair of strong shoulders. You won't have great difficulty finding such a man. He'll tell you he's busy, that there are too many other things that he is doing, but it's these busy folks who can be counted on to come through.

Get your man.

HINTSAND POINTERS.

† If you would avoid the pitfalls in this apparently simple task, ask the New York State Library, Albany, N. Y., to send you Library School Bulletin No. 50.

The Negro as a Municipal Problem

What a Local Interracial Conference or Commission Might Accomplish

By MARY VAN KLEECK
CHAIRMAN, NATIONAL INTERRACIAL CONFERENCE

If Your Negro Population Is Increasing

this article holds a challenge for your city. Instead of waiting for a race riot to start action, the author urges the immediate appointment of a local commission composed of wise men and women of both races who will study the conditions and make plans for meeting needs with even-handed justice and with a keen sense of the great social opportunity offered to a city made up of several races and able to demonstrate the varied and interesting possibilities of composite life.

Miss Van Kleeck is Director of Industrial Studies for the Russell Sage Foundation, and a Trustee of Smith College. As she well says: "Community planning of transportation, streets and even the location of business, homes, schools and playgrounds is now a well-recognized part of city administration. We have now to carry this same spirit into the more elusive problems of human relations."

A QUARTER of a century ago, the problem of the Negro in the United States was commonly thought to be the concern primarily of the rural South. Now, with the changes wrought by the war, with the northern migration of a million of the colored people, with the restriction of immigration and the turning of the Negro race into a primary source of new labor supply for American industry, the problem of the Negro has become in large part a problem of the city. Three and one-half millions of them are urban dwellers, and 90 per cent of these are in the large communities of over 100,000.

The increase in the Negro population in the last census decade was 57 per cent in northern cities and 33 per cent in southern cities. Detroit's colored population increased from 5,741 to 40,838, or 611 per cent; Cleveland's, from 8,448 to 34,451, or 308 per cent; Chicago's, from 44,103 to 109,458, or 148 per cent. In St. Louis, Philadelphia and New York the increase was more than 50 per cent. If industrial districts centering around large cities are considered, about three-fourths of the Negro population in the North could be accounted for in 1920 in the following 10 urban areas: Indianapolis, Detroit and Toledo, Cleveland and Youngstown, Kansas City, Pittsburgh, Columbus and Cincinnati, St. Louis, Chicago, Philadelphia, New York. As many as 75 cities had a Negro population of over 2,000 in 1920, and in 6 of them the colored population went into six figures or more, namely, Baltimore, Chicago, New Orleans, New York, Philadelphia and Washington.

In the northern cities the largest proportion of the Negro population is in the active age groups between 20 and 50, when men and women are at work in the industries, need wholesome recreation, are founding families and are responsible for making adjustment to the life of a new section. In the great opportunity which faces the United States to create a modus vivendi for the white and colored races so that each race may make its contribution and receive its largest return from the common civilization, the city is the primary factor, and it behooves those who are studying the problems of city life to see how hopeful a task is presented in this question of the races.

The National Interracial Conference

This opportunity and the ways in which it can be approached were subjects of discussion at the recent National Interracial Conference held in Washington, D. C., in December. The theme was "Race Problems in the United States in the Light of Social Research."

The Conference was sponsored by 16 national organizations whose task it is to improve race relations and conditions affecting both the white and Negro races in the United States. In addition, the Conference was attended by representatives of universities, white and colored, state departments of education and public welfare, trade unions and professional organizations, industrial schools, foundations and other organizations engaged in social research.

For more than a year, preparations were made in the form of analyses of recent social and economic studies and official statistics, so that the Conference had before it the objective facts from which to construct a picture of contemporary Negro life and the status of race relations. This material was subjected to rigid scrutiny and to vigorous discussion by men and women whose work in city and country districts brings them into daily touch with both races in their relations with each other.

A Problem for Municipalities

What the National Interracial Conference did for the country needs now to be done for every important municipality where Negroes constitute a growing group in the population. The facts need objective study, and the policies can best be worked out by interracial discussion of the facts, for here is a major problem of social democracy. We have seen in some communities the disastrous results of meeting this sudden influx and concentration of a dark-skinned race by improper policing and by attempts at forced segregation, with mob riots and costly trials as the inevitable outcome. We have seen in other communities in certain phases of Negro life the much more satisfactory results coming from adequate attention to the schooling of children, provision for good housing and recreation, a door open to opportunities for employment, the appointment of Negroes with an understanding of their race on the police force, as judges and court officers and as jurors, the opening of the facilities of clinics and hospitals for the cure and prevention of disease, and the facing of the most difficult problems of race relations through committees on interracial cooperation which could work out step by step wise plans growing out of consideration of the interests of both races.

As yet, no community can show a high rating in all of these desirable aspects. As the newest arrival and one marked by color which adds prejudice to all his other difficulties, the Negro finds the poorest housing open to him; and when numbers increase so that it is necessary to take possession of houses formerly occupied by whites, opposition arises and tension results. The lowest paid, most disagreeable jobs are the only industrial opportunity. Bad housing and bad working environment lower resistance to disease, and hospital accommodations and the opportunities of the Negro race for first-rate medical and nursing training are generally inadequate. School accommodations, where segregated from the whites, are usually inferior in salaries paid to teachers, in buildings and in the whole standard of education.

On the other hand, dependable social and biological studies show that the idea of inferiority of the Negro race in physique, in mentality and in ability to conform to law is a case not proved; that, on the other hand, the Negro in the period since emancipation has profited to an amazing degree by opportunities for education and by improvement in the standard of living and hence in conditions of health. He has also proved himself to be skilled in meeting the difficulties of adjustment to a new community, though he labors under the disadvantage of liability to unjust arrest and to more severe sentences than the whites when convicted. The extensive data brought before the Conference confirmed, in other words, the hope of the most optimistic that effort directed toward an improved standard of living and better educational opportunities for the Negro is amply justified.

The Conference also revealed the great advantage of giving opportunity to the leaders of the Negro race to express the point of view of the Negroes themselves. Take, for example, the problem of residential segregation or of segregation in separate schools. Psychologically, the difficulty is that when the dominant white race undertakes to compel segregation it does so with the assertion that the Negro race is inferior and it gives to the Negro race inferior accommodations, in violation of the principles of the democratic community which aim to open educational opportunities to all the children living in the community. Modern administration recognizes theoretically, indeed, that community measures for health, sanitation, education and law enforcement can draw no color line and that if one part of the city be neglected, the results in ignorance, disease and crime cannot be segregated but reach into all neighborhoods. Many Negroes will say that they have no objection to living with their own people, but that they do object to being crowded into inferior housing and to having the policy of the city based upon discrimination with the implication of inferiority.

Need for a Local Interracial Commission

The problems of human relations are not subject to formula, and the National Interracial Conference made no recommendations to cities. Its significance for municipalities is that each city in which the Negro population is growing may well provide for a commission of its citizens, composed of wise men and women of both races who will study the conditions and make plans for meeting needs with even-handed justice and with a keen sense of the great social opportunity offered to a city made up of several races and able to demonstrate the varied and interesting possibilities of composite life. Hitherto we have waited for a race riot before we have diagnosed the racial problems of a community. Surely this is stupid in the light of the procedure suggested by the scientific spirit, which would plan as carefully for races and their adjustment one to another as private companies now undertake to plan, for instance, for the future telephone service of a municipal area. Community planning of transportation, streets and even the location of business, homes, schools and playgrounds is now a well-recognized part of city administration. We have now to carry this spirit into the more elusive problems of human relations.

A Combination of Zoning and Platting Essential to Proper Land Development

ZONING can do most good to the community, create least interference with the rights of owners of property, and be most permanent in its benefits, where it is applied to land before it is developed for building purposes. The combination of zoning and platting plan is necessary to secure the proper development of land in the interests of the community and owners alike. For want of reasonable zoning restrictions and well-conceived plans, owners do things that reduce the value of their own and of adjacent property to a much greater extent than they would be reduced by the application of public restrictions on the misuse of property.

One of the most important reasons for planning undeveloped areas in advance is to secure that all land in a district will be laid out in accordance with its best economic use and that the street plan will be adapted to the zoning plan so as to save wasteful expenditures and avoid unnecessary depreciation of values. Where a proper zoning plan is prepared, streets and lots can be adapted to the building uses with great saving in cost. The bad layout of one owner may injure values in a whole district. A neighborhood that is suitable for high-class residential purposes may be lowered in value because one owner subdivides his property into very small lots, thereby facilitating the erection of poor buildings on inadequate areas.

—From the Report on Population, Land Values and Government, published January, 1929, by the Regional Plan of New York and Its Environs.

Has Your City "Undiscovered" Recreational Assets?

THAT the adoption of any program of public recreation should be preceded by a careful survey, not only of community needs, but of existing and potential community assets, has often been urged by experts in the recreation movement. The practical values derivable from thorough inventorying are to be found in many cities where ingenuity on the part of municipal officials—sometimes aided by civic associations—has resulted in (1) the purchase and development of "undiscovered" private land at a time when it was available at only a fraction of its subsequent value; (2) the conversion of abandoned and idle public property at a relatively small cost into splendid public play facilities, not, perhaps, otherwise possible; and (3) the reclamation and conversion of property not only idle but operating to create bad conditions from a moral or a sanitary point of view.

Following are accounts from three cities which have inventoried imaginatively, Janesville, Wis., Tulsa, Okla., and Albuquerque, N. Mex. There are doubtless equally dramatic stories of the acquisition of play properties in scores of other American municipalities.

A DRIVE ALONG ROCK RIVER, IN RIVERSIDE PARK, JANESVILLE, WIS.

One-Time Social Plague-Spot Now an Attractive People's Playground

JANESVILLE, WIS.—A few years ago any Janesville, Wis., group that wanted to have a picnic would motor to some nearby resort, sedulously avoiding the beautiful tract lying along Rock River about two miles from the business center, because of the commercial amusement park which attracted an objectionable class of people there and gave the place an unsavory reputation.

AT THE CHILDREN'S PLAYGROUND IN RIVERSIDE PARK

Today the 140-acre tract of land is a public park which any city might envy. Practically every church and school of the community holds picnics there, as do factories and other industries. People come from Evansville, Juda, Egerton and other places to enjoy the exceptional attractions of the spot.

The change did not come about without public opposition and a hard-fought political battle. When the matter of purchasing the land came to a vote in the Council, there was a tie in spite of the eloquent speeches of those who felt the necessity of the city's acquiring this important site. That was in 1920. Tom Welch, then Mayor (in the last administration before the adoption of the city manager plan) broke the deadlock by casting an affirmative vote, which surprising move on his part brought him into opposition with the men who had for many years been his strongest allies. Shortly thereafter he retired from public life, broken in health. But before the sounds of opposition had more than died away, a splendid people's playground was well established, and it stands today a perpetual memorial to the man who broke free from his old political associates to cast the deciding vote for its creation and to those who voted with him.

Riverside Park is maintained from the city budget. Year by year improvements are made. Three-and-a-half miles of winding drives have been constructed. Playground equipment has been provided for children, and a tennis court. On a plateau overlooking the river a nine-hole golf course has been laid out where deep ravines and rolling prairie combine to provide an engaging game, and one that is preferred by some to the games on privately owned links of the section. Rustic stone steps lead up to the course from the deeper ravines, small bridges span lesser chasms. Fireplaces have been built and tables and benches installed for the convenience of the daily picnic parties that frequent the place. Sometimes a number of outings are in progress simultaneously, but the grounds are so extensive that the parties do not interfere with each other's pleasure.

A large number of lilac bushes of many varieties have been planted by the Garden Club to vary the attractive natural growth of shrubs and trees. Wild flowers bloom in profusion through the spring and summer season. Literally thousands of swallows nest in the warm, loose sand-banks that rise clifflike from the river, to a great height in some places since the drives were cut through. Many other varieties of birds are attracted by the luxuriant foliage of the trees. Pheasants have been introduced to add their colorful plumage to the general scene, and now and then white seagulls swoop and dip above the river. The whole park is a refuge for wild life, rich in interest for those who love nature walks more than organized sports.

SCENE IN ZOO, ALBUQUERQUE, N. MEX.

Climbing from one elevation to another reveals new vistas of hillsides, tree-studded islands in the river, and distant fertile valleys of the countryside. Here and there are signs:

"Do not pick the wild flowers, break the trees, kill the birds or wild life. Do your part to keep your park beautiful."

All this is accessible by an easy hike, and is near the street-car lines; hence it easily became everybody's play place. Its present worth to the community is in no wise to be expressed in the statement of the city's initial investment of $25,000, great as that seemed to some of the park's opponents at the time of its purchase. As the city grows and the houses crowd closer together, the worth of Riverside Park will be incalculable, for here is one of those rare spots where the people of a commercial and industrial age and district may get some idea of the land and the semblance it bore in the days when the pioneers struggled to establish their first homes here in the wilderness. The disreputable old amusement park is all but forgotten.

—From data furnished to THE AMERICAN CITY by Mrs. Azel Clarence Hough, of Janesville.

A Mosquito Swamp Becomes an Up-to-Date Park and Zoo

ALBUQUERQUE, N. MEX.—The Women's Club of Albuquerque recently put on a drive for funds for the purchase of an elephant. The members are now trying to decide whether they can more advantageously buy a number of smaller animals instead, as their contribution to the city's splendid new zoo.

The genesis of the scheme in which the elephant—or the smaller animals—will play a part, goes back about ten years to the time when a chamber of commerce secretary with vision sponsored the idea of reclaiming some sixty-five acres of swampland and creating a city park area sufficient to the needs of a growing city. The idea was scoffed at by many of the leading citizens, but the secretary persisted in his efforts and acquired some of the land by gift of deed from the owners. "Mosquito Park" and "Swamp Park" were among the names sarcastically used by opponents of the plan. Aldo Leopold, this secretary who dared visualize a public improvement so far in advance of his times, left Albuquerque before the completion of the plan, and took up his former work of forestry with the University of Wisconsin. About three years ago, the Mayor, Clyde Tingley, took up the work where Mr. Leopold had left off.

The result is that today Albuquerque owns all these sixty-five acres and is building a beautiful park known as Rio Grande Park. The Mayor has a strong penchant for animals as well as parks, and so it was only natural for him to establish a zoo at this location. The land when first taken hold of was a hopeless swamp and under water every year when the Rio Grande was at flood stage. In order to correct this condition, the city constructed a drainage ditch parallel with the river, serving both to drain the land and to form a levee to protect against further flood encroachment. The park now contains a large acreage of trees and grass where picnics can be held in comfort, and an ideal playground has been created for the children safe from the traffic hazards of smaller parks and city streets. Public-spirited citizens have already purchased animals for the zoo, including all wild life indigenous to the western states. Camels, ostriches, buffaloes and other rarer specimens are rapidly being added to the collection, and the Women's Club, as stated, is considering an elephant as its gift.

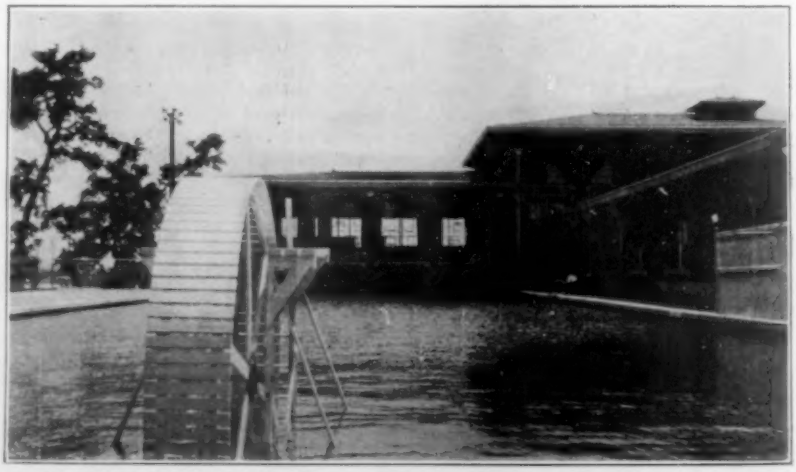
Both park and zoo have become objects of pride to the citizens and are splendidly patronized. It is further planned to install tennis courts, baseball grounds, and possibly a golf course. As a result of this park's development, the local country club has sold its old holdings and acquired a large acreage adjoining the Rio Grande Park and similarly situated. It has used a drainage system similar to that used by the city, has built two golf courses and now has a $50,000 club-house under construction. Following in the wake of these improvements came the inevitable subdivision of adjoining properties, and it is a safe guess that a fine residential district will result as a direct aftermath of the vision and energy of the former chamber of commerce secretary backed up by the practical work of a mayor who believed in parks. Rio Grande Park is now universally considered by citizens of Albuquerque as being the most constructive enterprise ever accomplished for the welfare and upbuilding of the community. A beautiful paved boulevard lined with trees has been built from the heart of the city to the park entrance, which is only five minutes from the business section.

EDGAR KNIGHT,
Secretary, Albuquerque Chamber of Commerce.

Abandoned Water Plant Becomes Fine Bath-House and Pools

TULSA, OKLA.—When the city of Tulsa completed the splendid Spavinaw water project, an engineering feat that has given her one of the best water-supplies in the country, the Water Department turned the abandoned water plant over to the Park Department to be converted into a bath-house and swimming pools, and these have become in turn distinctive municipal assets.

The building is of brick with stone trim

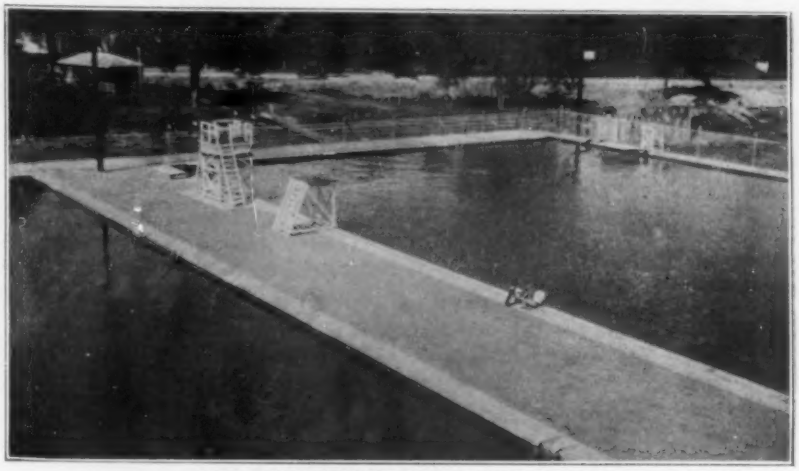


WATER-WHEEL IN SHALLOW POOL, WITH WOMEN'S DRESSING-ROOM IN BACKGROUND, TULSA, OKLA.

construction, with tile roof, and is in very good condition. Very little alteration was necessary in order to equip it with dressing-rooms, lounges, toilets, etc. Entering from the south by a flight of wide stone steps, one is ushered into the main lobby, where office, cashier's desk and ladies' check-room are located. Directly back of the ladies' check-room are dressing-rooms and showers. The men's check-room, dressing-rooms, toilets, etc., are located in the basement of the building. Here are also located the four large centrifugal pumps that supply water to the pools. Showers have been placed in both ladies' and men's rooms, so constructed as to send streams of water from all angles, and so placed that no one can get into the pools without a shower.

In the north wing is a refectory, about 25 by 175 feet, equipped with a large marble-top counter, benches, a Frigidaire and other food facilities for the convenience of patrons.

The converting of the two large settling basins into swimming pools was our greatest task. The partitions in the basins were of the very best reinforced concrete, and these had to be cut down and blasted, which was a very slow piece of work. The old floors of the basins were taken up, a new reinforced concrete floor was put in each of the basins, and coping and scum gutters were constructed. One of the pools (the largest) measures 101 x 182½ feet and graduates in depth from 3 feet to 10½ feet; the other pool is a shallow wading-swimming pool, measuring 57 x 180½ feet, with a depth of 18 inches to 4 feet at its deepest point. The pools are separated from each other by a large sand beach. On this sand beach are located showers, chairs and large umbrellas for the use of the bathers. The pools have a water capacity of over 1,000,000 gallons and can accommodate 2,000 bathers at one time.



THE TWO SWIMMING POOLS, TULSA, OKLA.
The larger pool is the deeper

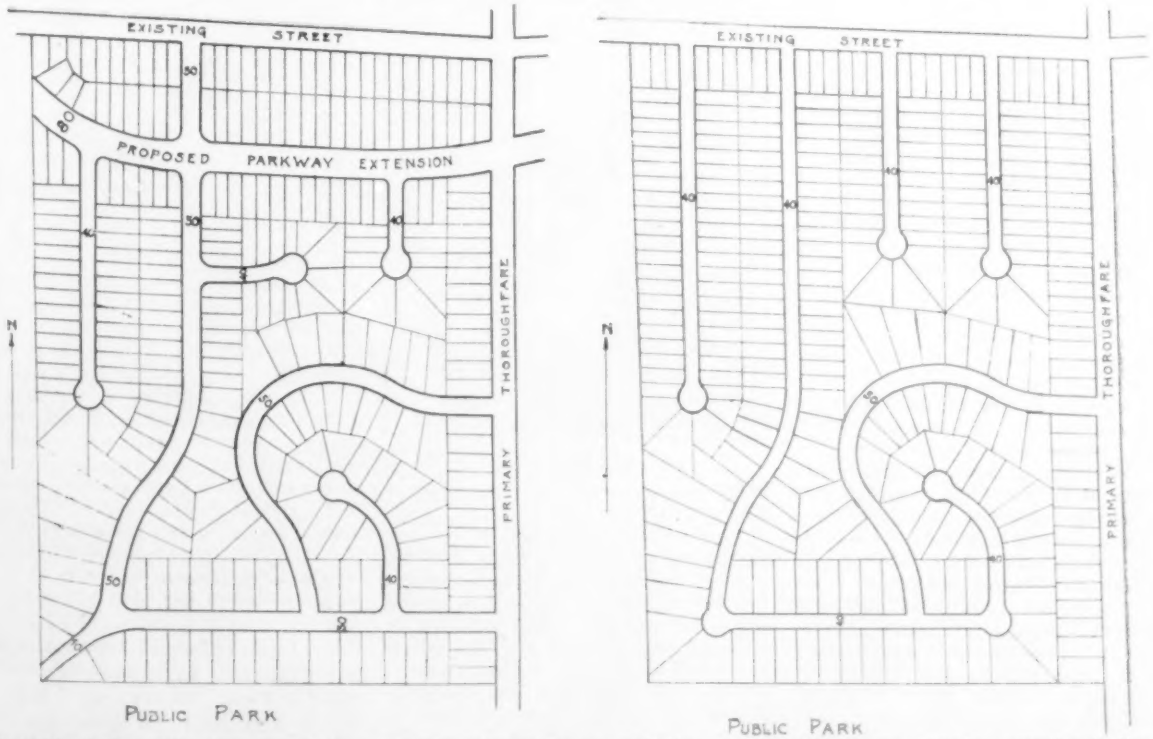
The spectators are cut off from approach to the pools by a 10-foot protective fence. The spectators' stands are arranged around both pools. These stands are covered with a canvas roofing to protect spectators from the sun's rays.

The water is purified by the use of a large chlorinator, 4 large alum pots, lime and vitriol; and a high grade of sanitation is secured.

Four well-trained life-guards are on duty during the bathing season, and the deeper of the two pools is provided with a life-line. Regulation cork life preservers are also a part of the equipment.

O. A. ZIEGLER,
Secretary, Board of Park Commissioners, Tulsa, Okla.

The Cincinnati City Planning Commission Causes Subdivision Plans to Be Improved



The left-hand plan in the above example is as originally submitted by the subdivider. A proposed parkway extension, according to the city plan, would cut across the tract, which event would have required condemnation of land and houses if the original plan had gone through. The interior of the tract was also unduly inaccessible. Upon suggestions from the Commission the plan was modified as shown at the right. The dead-end or "cul de sac" streets, which constitute an excellent feature of both plans, were made of more convenient lengths, access was provided from the southwest, and the parkway was included, thus making the subdivision conform to the city plan and also adding to the convenience of future residents therein. The plans are reproduced from "Municipal Activities," which describes last year's accomplishments in Cincinnati

Michigan and California Can Now Build Finer Cities by "Marginal Eminent Domain"

AT the election of last November the people of Michigan and of California voted approval of constitutional amendments giving municipalities the right of excess condemnation.

It is interesting to note that the Michigan amendment, as adopted, or similar amendments, had been four times defeated at previous elections, principally, in the opinion of its sponsors and supporters, for the same reason that excess condemnation has been so little used in America—because the advantages inhering in the plan are not properly understood and appreciated. The final victory at the polls followed campaigns of public education carried on through the press, and otherwise.

The following effective restatement of the meaning of excess condemnation is from a pre-election editorial published in the Detroit News, and reproduced in the November issue of *The Michigan Municipal Review*:

"The amendment gives the municipality the power, when it is condemning land for some improvement of sterling character, to acquire more land than is absolutely needed for the site of the improvement. Completion of the improvement will increase the value of this adjacent land. The city can then resell the land at its higher value. This means several advantages for the taxpayers. It means that the cost of the improvement is reduced by the additional price the city receives for the land it resells. It means that the added value of this land, which is created by all the taxpayers and not at all by the former private owners, does not go into the pockets of a few landowners who have done nothing to create this value, but goes to all the taxpayers.

"It also means that the city can put restrictions on buildings that will occupy this land after it has been resold, to bring them into harmony with the improvement constructed by the city, whatever that may be, this insuring that an expensive boulevard will not be spoiled by unsightly surroundings.

"The beauty of many European cities is due to the fact that long ago they adopted the principle of excess condemnation and were thus enabled not only to save money on the cost of the work, but to ensure that its surroundings be in harmony with the plans after they had passed back into private hands. One of the most noted examples of such practice of excess condemnation is the thoroughfare in London called Kingsway, which was cut through the heart of a slum quarter and now is lined by some of the finest buildings in the world. . . . If a similar opportunity were given American cities, they too could create similar improvements with assurance that the taxpayers' money would not be spent in vain."

The text of the Michigan amendment, which differs in at least one significant detail from the one adopted in California, has become Section 5, Article XIII of the state constitution, and reads as follows:

"In exercising the powers of eminent domain and in taking the fee of land and property that is needed in acquiring, opening, and widening of boulevards, streets, and alleys, municipalities shall not be limited to the acquisition of the land to be covered by the proposed improvement, but may take such other land and property adjacent to the proposed improvement as may be appropriate to secure the greater degree of public advantage for such improvement. After so much of the land and property has been appropriated for any such needed public purpose, the remainder may be sold or leased with or without such restrictions as may be appropriate to the improvement made. Bonds may be issued to supply the funds to pay in whole or in part for the property so appropriated, but such bonds shall be a lien only on the property so acquired and they shall not be included in any limitation of the bonded indebtedness of such municipality."

The California amendment authorizes a city or county to condemn land within 150 feet of the boundaries of the proposed improvement, and after the completion of the improvement to convey any such real estate thus acquired and not necessary for such improvement, *with reservations concerning the future use and occupation of such real estate as to protect such public works and improvements and their environs and to preserve the view, appearance, light, air, and usefulness of such public works.*

Edward D. Landels, in a recent issue of *The Community Builder* (Los Angeles) says:

"Unlike the Michigan and Rhode Island amendments, our amendment apparently makes it mandatory upon the city upon making a resale of the property acquired to impose building restrictions. In any case, this will give the city a very effective way of achieving architectural control upon the widening of important thoroughfares."

Mr. Landels continues, discussing the difficulties of devising adequate procedure for the exercise of the right of excess condemnation:

"The Legislature is empowered to prescribe procedure, and it is unlikely that any city would proceed with excess condemnation without the procedure being prescribed. So . . . our job is to prepare a legislative act prescribing a procedure to be followed, and this is no easy job. . . . I think this is a matter which should be gone at slowly and cautiously, but nevertheless, when once we are sure of our ground, I think the right should be exercised with determination. Particularly, I hope the protests of real estate promoters and over-cautious city attorneys will not prevent its use when once proper procedure has been formulated."

Mr. Landels also calls attention to the fact that the Legislature of Rhode Island last year passed an act creating a special commission to carry out the ambitious thoroughfare plan of Providence, and that this act outlines in detail the procedure of the Commission

"Excess Condemnation Does Not Mean Getting Mad at the Officials in City Hall"

The late Delos F. Wilcox, with characteristic humor, once gave this as his definition of what excess condemnation is not. Some recent attempts have been made to tell what it is, and with such success that, as told in the accompanying article, this much-needed power for the building of finer cities was made constitutional at the recent election in both Michigan and California.

Other states which have already adopted constitutional amendments authorizing excess condemnation are Massachusetts, Ohio, Wisconsin, New York, Rhode Island, and Virginia.

The right of excess condemnation—or of "marginal eminent domain"—has as yet been little used in America. It is hoped that Michigan and California will soon demonstrate so effectively the advantages of their newly acquired power that other states having the right will exercise it more frequently, and the practice will before many years become general throughout the United States.

in exercising the right to excess condemnation.

Dr. Carol Aronovici, editor of *The Community Builder,* proposes the term "marginal eminent domain" as coming more closely within the meaning and intent of the law than "excess condemnation." To the latter he objects on the dual score of its undesirable significance in city planning and its psychological effect upon those opposed to giving cities freedom in the use of land. Dr. Aronovici enumerates the numerous advantages of marginal eminent domain in his own magazine. To quote:

"It gives the community an opportunity to acquire well-integrated parcels of land which could be treated economically both for purposes of locating the improvement and securing ample space, and provides for adequate units which could be resold to the public after the improvement has been finished.

"It makes possible the protection of the value of the improvement by placing in the hands of the municipality the control of the type of building to be constructed on the land resold after improvements have been completed. These improvements may be parks, streets, play spaces, public buildings, squares, etc.

"It gives the city, or county, or any other governmental unit, the benefit of all enhancement in value due to improvement and relieves the property owner of all responsibility, while at the same time reducing speculation in land.

"In places where the property owners could not bear the burden of improvement costs, they are relieved at the beginning of responsibility or loss of property in cases where the owners are not able, out of their resources, to meet the city tax imposed because of improvements.

"It makes possible rapid development when the city or other governmental body imposes upon purchasers the requirement of building within a set limit of time.

"The adjoining areas close to the main improvement could be correlated in such a manner as to give the best service and the highest value to the entire enterprise.

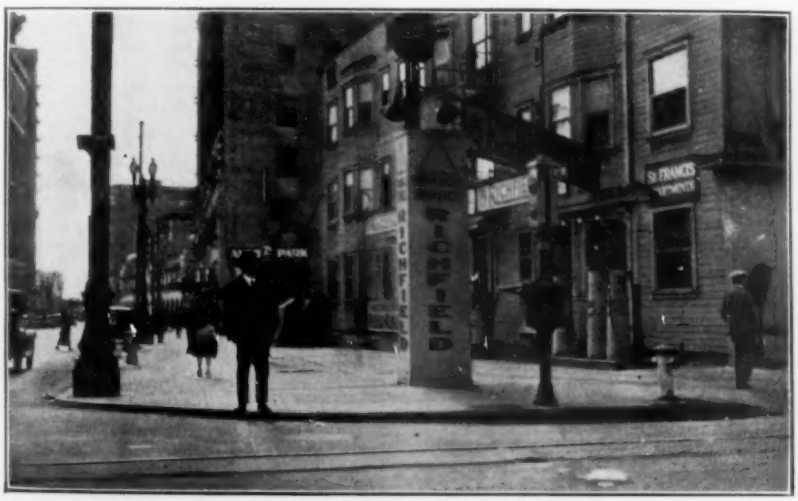
"The parcels of land to be resold after completing the improvement could be made of such shape and size as to make them more marketable.

"Architectural control and height limit could be established by the city through resale contracts so that each improvement may be made to bear the full value of the investment by the governmental body.

"It is quite clear to anyone who is interested in the well-being of the community, and whose main interest is not land speculation, that this principle has fundamental social and economic value to the community, and the adequate city planning in built-up areas cannot be done without some kind of application of the right of eminent domain that extends beyond the land actually needed for specific improvement."

A NARROW STRIP LEFT TO ITS FATE—THE SORT OF THING MARGINAL EMINENT DOMAIN IS AIMED TO PREVENT

This is on North Los Angeles Street, Los Angeles. The vehicles to the right are on what was the original street in that locality. The thoroughfare on the left is the new thoroughfare, a direct continuation of the street further south. The margins of the old thoroughfare and the new thoroughfare were separated by a narrow strip approximately the width of the gasoline service station and other structures in the center of the picture. Not only was the city required to pay handsomely for the property taken for street purposes, but the award for severance damages to the remnant constituted more than a fair value for the whole property



A STREET-CORNER REMNANT

The dimensions of this sliver occupied by the gasoline pumps are approximately 17 feet at the side and running 100 feet to a point along the dimension of the new Broadway, the opening of which left this sliver. The cost element is involved here as is usual, but in addition the sliver constitutes an actual "dog in the manger" in that it effectively isolates the adjoining large parcels of land from contact with the important frontage. This is an excellent example of the betterments that would result through a consolidation of remnants with adjoining parcels to create usable and commercially valuable frontages, not to mention the prevention of eyesores. This is at the southwest corner of Tenth Street and Broadway, Los Angeles

The key to constructive city planning is to be found in the greater freedom to use both private and public lands in the interest of the general welfare. Marginal eminent domain partly achieves this end in so far as it affects the use of private property for the common good.

Virginia Opens Door to Excess Condemnation

The constitution of the state of Virginia until recently stood in the way of the exercise of excess condemnation, or "marginal eminent domain," Section 58 having provided that the General Assembly "shall not enact any law whereby private property shall be taken or damaged for public uses, without just compensation."

In June, 1928, an amendment became effective that added the words, "the term 'public uses' to be defined by the General Assembly." This addition makes it possible for the legislature to authorize the taking, for replatting and resale, of land in excess of the exact area of the proposed improvement, by declaring such treatment to be a public use.

To Make a Long Story Short

Municipal and Civic Plans and Accomplishments Briefly Told

A Community Health Project in a Group of Mining Towns

KITZMILLER, in southern Garrett County, Maryland, is doing an excellent work in health conservation and education. Kitzmiller is the central unit in a group of mining towns having a total population of 5,000.

A GROUP OF CHILDREN WHO BENEFIT FROM THE HEALTH PROGRAM IN KITZMILLER, MD.

The people of the community had, up to a year ago, little knowledge of sick-room care, the care of babies and growing children, or the necessity for dental examinations, and they were too far removed from a large center to have adequate medical and hospital care even when such was extremely necessary.

The State Department of Health therefore sent Miss Yolanda Clawson down to Kitzmiller with a free hand to educate the people along the best lines of health conservation. She at once, and with much success, sought to make the undertaking a community project. An old one-room house was given by somebody to be used as a health center. Business men in the district gave lumber with which to make additions to the little building. Paint was also donated, and volunteer painters put it on. Skilled craftsmen built the necessary shelves and partitions in the house, and others installed the electric light connections. The home economics students in the high school made curtains and tinted the walls. The high school boys contributed labor on medicine cabinets, a bookcase, and writing tables. As a result of everybody's effort, it is now everybody's center. At times it is used for clinics and other health work. Again, it is turned over to the school children and their teachers as a recreational center. Such organization centers are uncommon in communities of this size and kind, and the inhabitants of Kitzmiller and vicinity appreciate this accordingly.

The little building is equipped with a dental chair, a hospital bed, and other necessary furniture, and all kinds of literature on health subjects is available for those who want it.

Classes are held in which instruction is given in the care of the sick, the new-born, the expectant mother, the crippled, and the feeble-minded. Still other classes have been organized for, and at the request of, midwives, who play such an important part in the lives of these people, shut off as they are from ready access to modern hospitals and trained physicians. Instruction is also given to high school girls, the so-called "little mothers," in the matter of baby care and feeding.

Each child is given a physical examination upon his initial apearance at school, and an effort is made to note his future health progress. Schoolroom talks are given frequently, and ideas of health and consequent happiness are being spread through the community.

Another important feature of the health work is the number of clinics that are held during the year. Every three months, clinics for diseases of the chest are held. At intervals during the year clinics are held for child welfare, expectant mothers, dentistry, anti-typhoid, ear, eye, nose, and throat, crippled children, and mental cases.

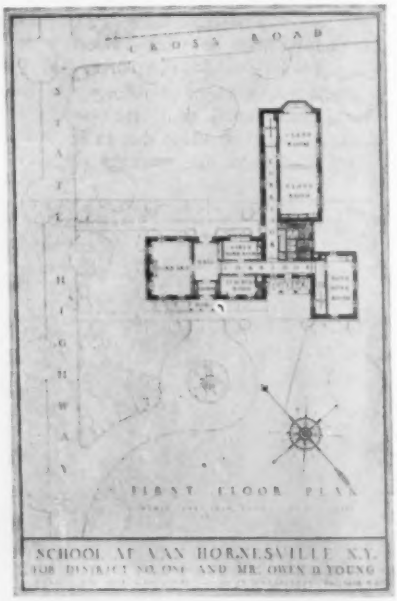
The name of Kitzmiller is coming to be synonymous with that of a whole community thinking health.

FRANCES MARY HUGHES.

The Schoolhouse That Owen D. Young Gave Van Hornesville

THE village of Van Hornesville, N. Y., has a new district schoolhouse which is one of the most beautiful buildings of its kind in America. It is a building that is remarkable in design, layout, and equipment, and is even more remarkable when regarded from the standpoint of its history and development. With the story of its inception is interwoven the story of a man of international reputation and of activities in world affairs; one of the Van Hornesville "boys," who, in his own words, has "never been pried loose from the land nor shaken free from the pull that draws a man back to the home acres." That man is Owen D. Young, Chairman of the Board of the General Electric Company and of the Radio Corporation of America, who gave this description of himself upon the eve of his departure for the Reparations Conference in Europe, in which he played an important part. He has kept a place in his native village. It is still his mother's home, as it was the home of his forefathers, and he goes there often.

When the district schoolhouse burned down a year or so ago, Mr. Young expressed a wish to replace it with the sort of structure which he considered appropriate to the present needs of Van Hornesville youth. He did not have in mind merely paying the bills. Many a rich man



FLOOR PLAN AND LOCATION OF VAN HORNESVILLE SCHOOL

has done that for the town where he was raised. He personally selected the best site in the village for a schoolhouse (and it is quite beside the story that this was formerly the "bad spot" of the community). He drew up specifications for the kind of building he believed would house the completest possible educational opportunities for the village children, including many things which district schools did not provide when he was a boy. A competent architect, Ernest Sibley, of Palisade, N. J., was employed, and when plans had been completed, Mr. Young went out, dressed in old clothes, and with his pipe in his mouth, to work along with the able-bodied men of the village.

"This is the biggest thing on my pro-

PUBLIC SCHOOL FOR VAN HORNESVILLE, N. Y., THE GIFT OF OWEN D. YOUNG

gram this year," he told the State Board of Education when submitting the plans for approval. But he did not think of the undertaking as *his* project. He wanted it to be a community undertaking; and it was made so in every sense. Local labor was used entirely. Field stones from the walls that had originally divided farm from farm were used for the building. These, when split, afforded interestingly varied coloring.

The building is divided into classrooms which can be thrown together for community purposes; rooms for special studies; a teachers' room; and a library, which is also the community library. The furnishings are as interesting and distinctive as the building itself. They were made in early American style by the few veteran craftsmen still working in Fort Plain.

A landscape setting, simple and appropriate, has been developed for the building. The approach across the front lawn is by a path that encircles a flagpole. At the rear, a lovely widening stream has been spanned by a rustic bridge, by which the playground is reached. Adjoining the school grounds is an athletic field, and facing the grounds is a green, which Mr. Young has developed into a public park.

One of the most interesting features of this splendidly conceived structure is the fact that, while it is completely appropriate to present-day needs, it has been so designed as to be made the central unit of a more elaborate structure—a school plant that may be developed to meet increasing future needs almost indefinitely.

A Notable First-Year Record of a Recreation Department

THE Recreation Department of Miami Beach, Fla., was organized in June, 1927, "to provide wholesome, happy play for all the children, and to stimulate and guide older children and adults in the use of leisure time." The worthwhileness of the organization is indicated by the first annual report, which shows that recreation programs were participated in during the year by 186,919 players of tennis, football, baseball, volley-ball, and other games, including attendants at the public concerts. The increasing popularity of organized play is shown by the fact that, whereas the attendance figures at playgrounds during the first month were 2,671, they mounted steadily to 10,100, 12,284 and 21,380, and in February, which is one of the most popular outdoor months, they reached 40,184.

Facilities provided include a children's playground, three tennis courts, one volley-ball court, three horseshoe courts, one shuffleboard court, three chess and checker tables, two diamond ball fields, one baseball field, one soccer field, one basketball field, four handball courts, one croquet green. Athletic leagues have been organized for women and girls as well as for men and boys; and a canoe club, dramatic, handcraft, and other groups have been formed. Pageants, a First Annual Father and Son Banquet, and a Mayor's Day were special features of the year's program. Fourth of July and Labor Day were made occasions of large-scale celebrations, in which the Chamber of Commerce cooperated with the Recreation Department.

In response to a definite demand, the Department introduced weekly programs of evening entertainment consisting of a community sing followed by special attractions. Amplifiers have now been placed in the park, and radio concerts are given three times a week. All sports areas have been lighted for night playing.

Some exceptional services have been introduced into the recreation program. These include, among children's activities, a junior kindergarten. Here children from two to five years of age may be left any morning except Saturday. These children are taught games and sand modeling. Saturday morning is kept free for the story hour for children from 5 to 10. A baby dancing class is held twice a week, and the pupils are given regular parts in public entertainments which are given at regular intervals by the dancing classes for older girls.

When the recreation program was inaugurated, there was a definite need for a wholesome and attractive dancing place, free from the night club atmosphere. After due consideration, a Dance Patio was built adjoining the Municipal Golf Club. The Miami Beach Women's Club undertook to chaperone the dances during the winter season, and the innovation was a great success.

J. B. Lemon, Recreation Director, was assisted only by a girls' activities director and a boys' athletic director, but many outside agencies gave their hearty cooperation and support, and the whole program was backed up splendidly by the City Council and the City Manager.

What Waterways, Properly Developed, May Mean to Small Cities

MANY municipalities contiguous to waterways do not realize their value until they have been abandoned, Richard C. Job, Secretary of the Chamber of Commerce at Elizabeth City, N. C., asserted at the National Rivers and Harbors convention last month.

Whereas, during the war, speed and not freight rates was the main consideration, the present era demands economical shipment of commodities, Mr. Job said. As an example of a community to which a waterway is of prime importance, the speaker offered his own, which is a distributing center for gasoline and oils.

He has found in that case that the saving in water freight rates on gasoline, over the all-rail rates, amounts to ½-cent per gallon, or approximately $50,000 a year. About 80 per cent of this gasoline is re-shipped by boat to various towns and villages in that coastal area; and without the waterway, he considers it very doubtful that Elizabeth City would have been chosen as the distributing point. In the lumber field, he has found that one firm alone estimates its savings in freight rates, due to the waterway, to be about $55,700 each year.

The waterways, however, are not injuring the railroads, but rather supplying them with considerable tonnage of fin-

ished products manufactured from the raw materials being brought in by water, Mr. Job contended. To emphasize the value of waterways still further, he explained that the average city in the South is largely dependent on its timber and its agricultural back country.

Thus, unless these communities enjoy reasonable freight rates for the marketing of their products, they cannot be prosperous. It is almost impossible, however, the speaker added, to obtain accurate data as to the tonnage supplied to and shipped from the small cities, since much of it is carried by "tramp" boats or irregular lines. Most of the small cities and towns on the waterways now have regular lines operating, especially since the Government has taken over the inland waterways and is maintaining the standard depth. In many cases, these regular lines, as well as the tramp boats, deliver a portion of their cargoes to truck lines operating in the surrounding territory. Between 75 and 100 trucks are engaged in delivering and collecting freight in the eastern counties of North Carolina for boat shipments, Mr. Job declared.

In addition, he called attention to the fact that many of the towns along such waterways depend upon water transportation entirely, because in the South a number of such communities are without rail connections. In Florida, a plan is being realized which will provide a canal not less than 8 feet deep at average low-water stages and 75 feet wide at the bottom, extending from Jacksonville to Miami. The estimated cost of this development is $4,221,000, to be expended over a five-year period. Realizing the importance of this undertaking, small cities in that state are now building harbors, wharves and warehouses.

In their campaigns to obtain new industries, small cities should realize that such enterprises in most cases prefer to locate where water transportation is available. Although few of such communities can expect to grow to metropolitan proportions, it is Mr. Job's belief that the city located on a waterway has a brighter future than its sister towns inland.

From the angle of returns from pleasure seekers, Mr. Job argued that the congestion of the highways is forcing many individuals to use yachts. In Elizabeth City, an increasing number of pleasure craft have been visible during recent years and a survey disclosed that an average of $300 per yacht is spent in that city each year while the craft is in port. This figure includes money for repairs, gasoline and oil, food supplies, laundry and amusement items.

As a final example of how the average community fails to appreciate the advantages of inland waterways until too late, mention was made of the two privately owned canals connecting the Chesapeake with Albemarle Sound in North Carolina. One of these, the Albemarle and Chesapeake Canal, was purchased by the Government and made toll-free. Until that time, about 90 per cent of the traffic utilized the other route, known as the Dismal Swamp Canal. But with the toll free, the former canal has gained most of the business, Mr. Job said. Thus, Elizabeth City now watches much of the commerce it once enjoyed, passing 16 miles to the South. While certain that the Dismal Swamp Canal will be made toll-free soon and thus again attract much of its former business, Elizabeth City ranks among those communities which are learning from experience what waterways may mean to a small city.

Various Views Expressed on By-Passing of Traffic

AN interesting report on the problem of by-passing automobile traffic has been prepared by the New York State Bureau of Municipal Information, based on data gathered by questionnaire sent to the city engineers of all the cities and first-class villages in New York State, and to the mayors of the 300 largest cities in the country. The replies received from cities outside the state were from various officials—mayors, traffic engineers, chiefs of police and others.

More than two-thirds of the cities have no provision for by-passing traffic around rather than through the business centers. Those expressing an opinion are almost equally divided, however, as to whether the passing of *all* traffic through is beneficial to local business or whether business would suffer from routing traffic around the municipalities. Replies to the Bureau's questions on those issues differed considerably with the character of the city reporting. The average industrial municipality expressed itself, in general, as in favor of keeping through traffic out of the congested areas. Resort and vacation cities, on the other hand, were almost unanimous in declaring themselves opposed to any system of by-passing.

In actual numbers, 90 cities of the group said that they have no by-passing provisions, 18 do have, and 6 are preparing to make such provisions, 5 maintain a partial by-pass system, usually in the congested areas, and 4 have optional routes posted.

Among the 18 reporting such provisions, however, several do not have the routes posted, while others provide a half-and-half arrangement with part of the posted route running through the downtown district and part through the residential section.

The question, "Do you believe that *all* of the traffic (especially that coming from other places) which uses your streets or roads is beneficial to local business?" brought many varying opinions. A negative reply was given by 62 of the municipalities, while 34 answered in the affirmative and 23 others said traffic of that type is beneficial to a certain degree. In estimating just what percentage of this traffic could be termed beneficial, however, most of the cities agreed that only from 5 to 25 per cent could be so considered. Ten per cent proved the most common estimate given, although a few went as high as 75 per cent and two of three believe all of it is desirable. An enlightening feature of this aspect of the problem was disclosed in reports from two cities which estimated that only about 2 per cent of the through traffic is beneficial, but that at least 75 per cent of the suburban traffic is worth having. This latter variety of traffic, they stated, usually comes into the city for shopping purposes.

Niagara Falls and other tourist centers believe all traffic passing through is of real value to the city, but such municipalities as Erie and Pittsburgh, Pa., set 10 per cent or less as the beneficial ratio. Detroit replied that "all traffic entering the city cannot be regarded as beneficial to local business, although any attempt to establish compulsory routes or to segregate traffic would not be well received by the general public."

Columbus, Ohio, and Quincy, Mass., were among the several cities which said that traffic coming from other places is of value only if the travelers stop over night in the city. Scranton, Pa., and one or two other municipalities think that the through traffic, if not beneficial to business, at least advertises the city to the tourist passing through.

The query, "Would local business of your community suffer if provision was made to permit traffic to pass around your city or through less congested streets on the outskirts?", divided the municipalities into two groups of almost equal size, for and against by-passing practices. It was the opinion of 61 that such a provision would bring some suffering to the business of the community, although 23 of this number were careful to qualify this assertion by listing only certain types of business which they thought would be adversely affected. There were 52 cities which did not believe by-passing provisions would materially harm local business. Among this group were several municipalities which said they would be willing, however, to sustain a small business loss if routing cars around the outskirts would relieve traffic congestion in the downtown district.

It was agreed generally, that gasoline stations, hotels, restaurants, garages, confectionery stores, etc., would suffer most from routing traffic around rather than through cities. Conversely, it was stated that retail business, except in instances where the suburban traffic is heavy, would not be greatly affected. South Bend, Ind., holds that by-passing would depress business but very little. "In almost all cases," the reply said, "a by-pass route is used by persons who have no business to attend to in the business center. On the other hand, a benefit results to those who do have business in the congested center, since by-passing gives these folks more room."

Stamford, Conn., asserts that "some merchants might suffer from by-passing, but business would be gained by others on the outskirts. If traffic is routed around the city, however, the route should be optional, with signs directing traffic to the business section so that passengers may attend to business if they so desire."

Oak Park, Ill., finds, on the other hand, that local business is benefited in general by having all traffic pass through the heart of the city. That municipality considers the practice a desirable method by which to present to the tourist and traveler the advantages of the community

Elmira, N. Y., takes somewhat the same view, although admitting that the summer tourist who has no business there could be allowed to pass around the city without injuring its business. Nevertheless, that city's report says that "our suburban population and others should be permitted to pass into the business section. The Association of Commerce and the Businessmen's Association are both opposed to routing traffic around the city, for business reasons. It is opposed by many others because our city would receive no advertising if strangers never saw the heart of it."

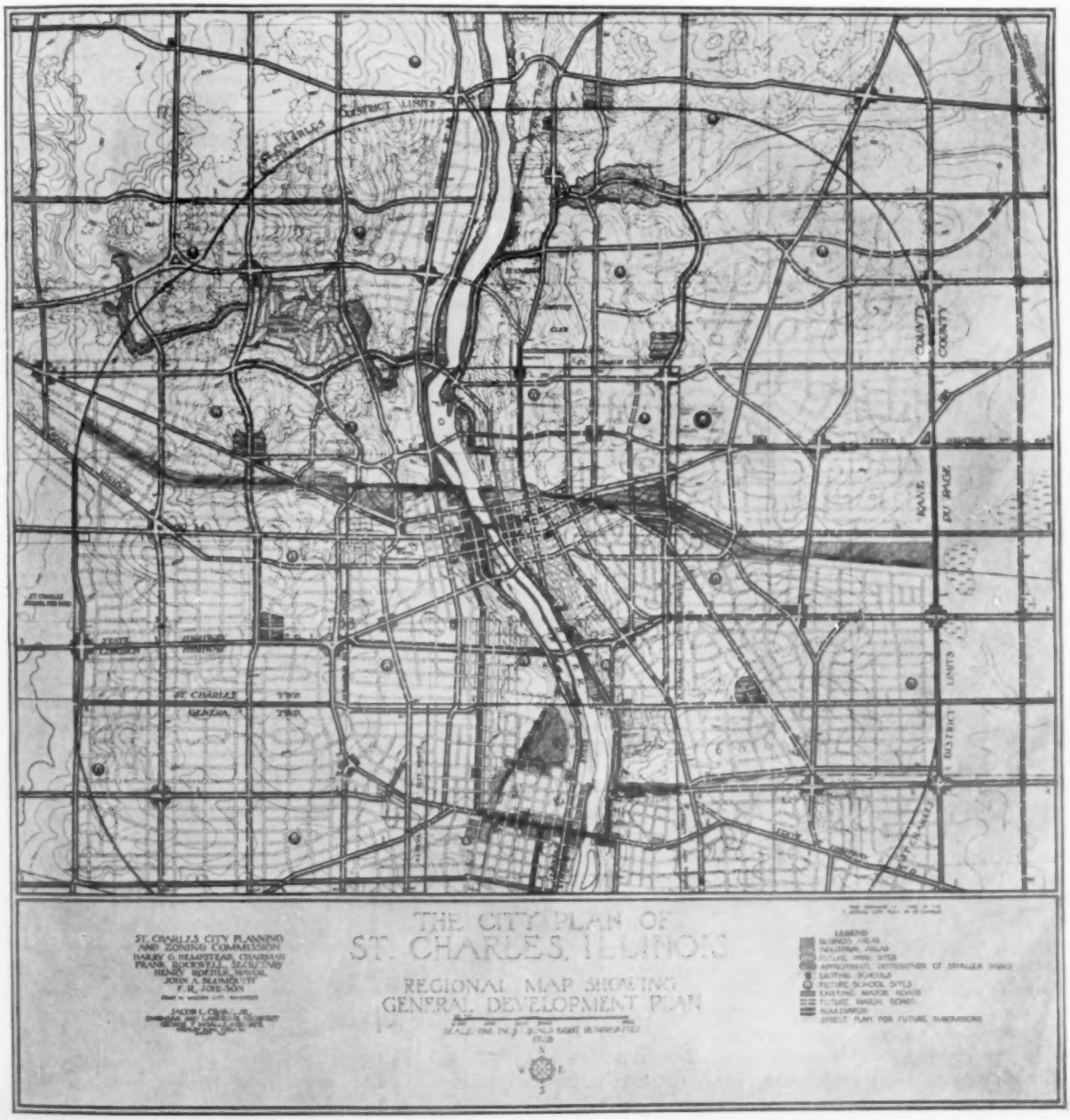
Green Bay, Wis., claims that "although probably by-passing would affect business but slightly, it would be difficult to convince local merchants, hotel and restaurant keepers of that fact. Routing tourist traffic around or on the less congested streets would just about solve the traffic problem. With both sides of our business streets filled with parked cars, tourists cannot stop in that district anyway and are compelled to go to less congested sections. With appropriate local signs to direct traffic to hotels and the business district, if tourists desire to go there, as good, if not better, business results would be forthcoming."

Three Contrasting City Plans

THE fundamental city planning principle that each individual city plan must be evolved out of the local conditions and requirements, is well illustrated by the plans recently prepared for the three cities of Alton, Ill., Ponca City, Okla., and St. Charles, Ill.

Alton is a manufacturing city on the bank of the Mississippi River, with unusually difficult city planning problems created by rough topography, development overly dense in some sections and too thinly scattered in others, a deplorable mixture of uses of property, a poor street system, and a precedent of subdivision platting which violates every principle of good subdivision design. This is a town of about 35,000 people with prospects for growth to probably 75,000. The character of the site and errors in past planning have controlled the pattern of the development plans prepared and now adopted.

St. Charles is a small town of 6,000 people, on the Fox River 40 miles west of Chicago, now largely dependent upon industries, but being transformed gradually into what will probably be a dominantly suburban residential community. Here there have been fewer mistakes in the past, and the work of Mr. and Mrs. Lester Norris and Ed. Baker in making several notable building improvements has stimulated interest in the general problems of



community development. The pattern of the town plan is here controlled by the topography, the existing development, and the necessity for providing several east-and-west highway routes, at the same time recognizing the demands for good suburban development.

Ponca City is an Oklahoma oil boom town which has grown from almost nothing to a population of about 20,000 during the past ten years. The ground is mostly flat or gently rolling, the existing street plan is, except in one or two details, excellent, and the problems for city planning are relatively simple. The greatest problem is that of the elimination of railroad grade crossings. In Ponca City two rich citizens, E. W. Marland and Lew Wentz, have done a great deal in donating or reserving and developing land for public use.

The official reports of these three projects may be secured from the City Clerk in each case. JACOB L. CRANE, JR.

Saving Money in Street Widening

Tremendous Economics from Combining a Definite City Plan With a Definite City Program

By G. GORDON WHITNALL

DIRECTOR-MANAGER, CITY PLANNING COMMISSION, LOS ANGELES, CALIFORNIA

IN the Los Angeles program of city planning, a short summary of which constitutes the Annual Report mentioned in THE AMERICAN CITY last month, reference is made in one of the divisions to the monetary savings that are being realized through the combination of a definite city plan with an equally definite city program. Though it cannot be said as yet with respect to Los Angeles that budgeting of capital expenditures for all forms of public improvements has been put into practice, it can nevertheless be said that that ideal was early formulated as a definite objective by the City Planning Commission of Los Angeles.

Planning the Outlying Sections

The Los Angeles situation differs somewhat from the usual in that over one-half of its 450 square miles is only partially urbanized, if at all. This condition has produced a rather unique situation in respect to realizing a city planning program, as the problem divides itself into two very distinct branches. The first and probably most important of these is the planning and supervising the development of the outlying or unurbanized sections of the metropolis. This branch of the work has proved most fascinating in that substantial accomplishments have been realized without expense, save the nominal administrative costs of the department. Though the exigencies of the case have precluded the development of a plan with intensive detail, the structural framework of the community has been fairly well determined. This is true not alone in the city of Los Angeles, but in the surrounding areas supervised by the Regional Planning Commission of the county. As a consequence of this work the essential elements of a well-balanced metropolis are being built into the city in the first instance, thus eliminating prodigious expenditures for replanning and remodeling in the future. This, of course, constitutes the acme of money saving in street widening.

The Major Traffic Street Plan

The other branch of the city planning program relates to the urban center, which for the most part came into being as a result of a multitude of individual developments and before any thought had been given to the coordination of improvements through a city planning program. It is certain that there were none who had such vision as to foresee the tremendous proportions to which the community has developed. As a consequence of this piecemeal, haphazard, patchwork growth, the city recently found itself sorely pressed for want of adequate circulation facilities. Out of this condition grew what is now known as the Major Traffic Street Plan, which assumes greater significance than the usual so-called plan because of three facts. First, it re-designs the metropolitan nucleus so as to fit the ancient center into the modern encircling band. Second, it has the definite approval of the population as expressed through a popular election. Third, it incorporates essential elements of a program as well as being merely a plan.

In respect to the program element, out of the multitude of projects that comprise the whole plan, certain of them have been selected and combined into what we term the first and second units, respectively. In addition to approving the final plan, these two first units were definitely afforded financial assistance through the vote of the people. As a consequence, there have been injected into the city-wide plan two elements that make for a very high degree of certainty of accomplishment. The first of these is the power of the city to compel adherence to the plan by new developments in the outlying areas. The second is the allocating of certain general funds, the enjoyment of which cannot be realized save by the completion of any given project in either of the two units.

General Adherence to "Taking Lines"

The most interesting phenomenon has been the result of the confidence in the future of the city plan as a result of these factors. That result is the quite general adherence to the so-called "taking lines," whether in respect to a reconstruction or whether in respect to an initial construction of highways. It is so generally accepted in respect to the elements of the city plan that they are both definite and inevitable, that it is very seldom that an effort is made to construct any buildings beyond the known limits of future highway improvements. Though the state of California has for two years granted its cities certain powers to assure conformance to definite official plans, that right has not been enjoyed by the city of Los Angeles, by reason of conflict with its home rule charter. The success, however, with which Los Angeles has demonstrated the feasibility of realizing its ultimate ambition in respect to the comprehensive plan by evolving the new out of the old through the simple process of being definite, speaks wonders for the ultimate efficacy of some form of grant of power to cities which will compel adherence to the definite plan of the community.

It is not intended by the foregoing to infer that our experiences have been successful in every instance. It has been the intent, however, to convey the thought that, given a definite plan which is at once recognized as comprehensive and reasonable, the public acceptance is prompt. When to this can be added occasional instances that demonstrate the tremendous monetary saving by planning in advance of development or reserving development in anticipation of re-planning, then the result in public opinion cannot do other than tend to ostracize the individual who for personal and mercenary motives sees fit to ignore the welfare of the community at large at the obvious expense of his neighbor. It is because of that occasional type of individual that we recognize the need for some form of compulsion, but in the meantime we are convinced that the simple act of being definite has saved tens of millions to our community.

Definite plans made it possible to build this permanent building on the future street line. Result—economy and permanency.

This building had to be cut back to permit street widening. There were no definite plans when it was erected. Result—expense and uncertainty.

This building also had the advantage of a definite plan and consequently could build to the new line. Street widening not yet completed. Result—economy and permanency.

CHAMBER OF COMMERCE BUILDINGS IN CINCINNATI, BUFFALO AND TULSA

Each has been built by the Chamber of Commerce, either alone or in conjunction with other organizations, and is occupied in part by the headquarters of the Chamber. The Buffalo building, in the center picture, is built around two sides of the bank structure on the corner

Chamber of Commerce Quarters Grow in Spaciousness, Convenience and Dignity

KEEPING pace with municipal and commercial building and improvement projects in their communities, many chambers of commerce have been moving into new quarters.

Cincinnati, Ohio; Tulsa and Oklahoma City, Okla.; Jacksonville, Fla., and Buffalo, N. Y., are among the larger cities whose chambers of commerce have followed this trend. In the first four instances, new structures—generally known in each case as the Chamber of Commerce Building—have been built, while the Buffalo organization recently moved to more spacious quarters in the same building.

THE COMMERCE EXCHANGE BUILDING, OKLAHOMA CITY

The Chamber of Commerce occupies a part of this building, which was erected by the Builders Exchange with the collaboration of the Chamber

$2,000,000 Cincinnati Home

Although the Cincinnati Chamber of Commerce has been occupying its new home for more than a year, it ranks as one of the most pretentious of the recent developments in this field. The fourteen-story building was erected by the Chamber and is owned and operated by it. It cost approximately $2,000,000 to build and equip the structure, which was financed partly through a building fund already possessed by the Chamber, and partly from the proceeds of a $1,300,000 bond issue that was largely oversubscribed by Cincinnati citizens.

The Chamber of Commerce occupies the three top floors, the Cincinnati branch of the Federal Reserve Bank and business concerns taking the remaining office space. Patterned after the architecture of the Fifteenth Century Italian Renaissance, the building is beautiful as well as practical. This fact is borne out by the heavily rusticated walls, belt lines with heraldic devices, Roman and Doric arches, and an impressive entrance flanked by bronze lanterns. The walls of the vestibule and lobby are of imported Travertine and Numidian red marble. A richly ornamented ceiling in vivid colors and Florentine gold adds to the attractiveness of this feature.

On the twelfth floor, the first occupied by the Chamber, are the general and executive offices of the organization. The directors' room is Georgian, paneled to the ceiling with mahogany and crowned with a carved Christopher Wren molding.

The thirteenth floor is devoted to the main assembly room and private dining-rooms. While not of the period design, it is in keeping with the prevailing thought because of its wainscoting of Bettichine, pink Lepante marble and bronze lighting fixtures.

On the fourteenth floor, the same motif is expressed in the vaulted and decorated ceiling, with walls of Travertine and Hauteville marble like that marking the vestibule and main lobby. Passing to the lounge on that floor, one finds the schematic scene shifted to England of the Elizabethan period. The main dining-room, with its paneled oak walls and strop ceiling decorations, is of the same period. Pilasters with Ionic capitals give a touch of the classical, but the prevailing overnote is evidenced in the bronze lighting fixtures, green marble wainscoting and Italian sideboards.

Tulsa Realizes Dream

Tulsa and Oklahoma City, off to the southwest, are also proud of the modern homes of their progressive Chambers of Commerce. The Tulsa building was erected jointly by the Chamber of Commerce and the Tulsa Club. Housed in the lower five stories which the Chamber utilizes, are also the following organizations: Retail Merchants' Association, Tulsa Traffic Association, Junior Chamber of Commerce, Better Business Bureau, State Chamber of Commerce, Community Fund headquarters, Automobile Club of Oklahoma, Girl Scout headquarters, Tulsa Art Asso-

ciation and a few oil, petroleum and gasoline associations. The exterior of the building is of Bedford stone, giving it an air of simplicity and dignity.

With the completion of the equipment work throughout the Chamber's portion of the building, the Building Committee of that organization completed a task on which it had concentrated for more than five years. Offices for the use of the various civic organizations, and stock and service rooms are on the first or ground floor, and a compact heating and power plant occupies the basement and a portion of the ground floor. The second is actually the main floor, however, and there are the general executive offices of the Chamber, Retail Merchants' Association, Better Business Bureau and State Chamber of Commerce. There is a large central lobby, 25 feet wide by 90 feet long, which serves the double purpose of club-room and waiting-room. Comfortably furnished, the conference room, also on this floor, provides a convenient and attractive place in which civic leaders may discuss municipal problems. All the offices are along the entire south side of the main lobby and are separated from it by a wood and clear glass partition about 100 feet long.

On the third floor are the offices of allied organizations. This floor was laid out in mezzanine fashion, in so far as the lobby is concerned, making the latter feature really two stories high. The mezzanine is equipped with the prevalent type of modern furniture, and has reading tables and other conveniences also found in the main lobby.

On the fourth floor, are the dining facilities of the Chamber of Commerce. These include a large main dining-room, 40 feet wide by 108 feet long, and two stories high. By means of folding doors, the room may be divided into three dining-rooms of equal size, each able to accommodate from 100 to 150. When used as a single room, the main dining-salon will care for 450. Impressive draperies and lighting fixtures grace this room. Adjoining, are four large committee rooms which may also be used as private dining-rooms. The kitchen is also on this floor.

THE NEW HOME OF THE JACKSONVILLE CHAMBER OF COMMERCE

INTERIOR VIEWS OF FOUR CHAMBER OF COMMERCE HEADQUARTERS

Upper left, Cincinnati, main dining-room; upper right, Tulsa, main office; lower left, Jacksonville, lobby; lower right, Buffalo, directors' room

Since the main dining-room is two stories high, only the north half of the fifth floor is available. It is at present given over to offices but can be quickly converted into a committee room.

Oklahoma City Falls in Line

A double purpose also prompted the construction of the new Chamber of Commerce home of the Oklahoma City organization. The Chamber needed more spacious quarters, as did the Builders Exchange, an organization of local building concerns. The two groups thus joined in the erection of the ten-story Commerce Exchange Building, at a cost of about $775,000, the Builders Exchange being the actual owners and operators of the structure.

The business activities of the Chamber of Commerce are carried on in the offices and conference rooms on the ninth floor. The banquet and luncheon service room of the Chamber seats 700 and occupies the entire tenth floor. Space for the exhibits of various kinds of materials and fittings for homes is provided on the second floor by the builders, who occupy that entire floor. Six other floors are devoted to offices and one floor to retail stores. A special dedication program was conducted by the Chamber of Commerce on December 14, 1928.

Attractive Building in Jacksonville

Far down in the South, Jacksonville, Fla., formally opened its new $300,000 Chamber of Commerce Building last June. Of appealing exterior design, it consists of three stories, known as the ground floor, mezzanine and second floor. The lower floor is occupied by stores, which have ornamental iron fronts mounted on a polished granite base. An auditorium seating 1,000 is also on the ground floor, and is used for conventions and civic meetings.

A grand marble staircase leads to the mezzanine and second floors, where the offices of the Chamber of Commerce, Traffic Bureau, United States Bureau of Foreign and Domestic Commerce, the Junior Chamber of Commerce and the Believers in Jacksonville Association are located. The building fronts on Duval Street, extending 156 feet along that thoroughfare and 104 feet on Julia Street. An ornamental frieze extends below the main cornice and the entrance is elaborately carved. A competition was conducted by the Chamber to obtain the most desirable architectural plans for this building.

In the northeast section of the country, the Buffalo Chamber of Commerce opened new quarters last October on the main floor of the Buffalo Chamber of Commerce building. This building was erected many years ago by the Chamber and other groups. Occupying originally the rear wing on the fourth floor and later, most of that floor, the Chamber, to realize its expansion plans, finally made a shift to the main floor. Before moving into these larger and more convenient quarters, which had been occupied by the Buffalo branch of the Federal Reserve Bank, new fixtures were installed throughout.

Buffalo Chamber Moves

Department heads are housed in private offices, encircling the secretarial staff, under a central plan. The offices of the general manager, the assistant secretary, the industrial commissioner and the research department, are in the front section. A large portion of the basement is also used by the Chamber, and the mailing and filing rooms are located there. With the establishment of these new quarters, a two-year reorganization and expansion program was completed. New departments created include the Foreign Trade department, the Industrial Research and Civic Service department, the Industrial and Trade Development department and the Inter-Club Service department.

Home-Financing Facilities and Community Well-Being

THE man who wishes to own his home is generally regarded as a distinct asset to the community, but if he possesses only 10 or 15 per cent of the total funds necessary for an adequate and reasonable establishment, the natural difficulties of such a financial venture are usually multiplied; and the community seldom tries to smooth his path, although his value as an industrious citizen may well be greater than that of the man whose nest is already well feathered.

A recent booklet issued by the Department of Commerce, entitled "Present Home Financing Methods," describes and discusses ways of establishing home ownership, with particular attention to the family that has as yet but a small percentage of the cost of a home, and must borrow heavily, paying off the loans by instalments. The types of borrowers are divided into three groups by the authors, John M. Gries and Thomas M. Curran, of the Division of Building and Housing, Bureau of Standards. The first group comprises those with cash amounting to one-half, or more, of the total cost; they experience little difficulty, as a rule, in obtaining the remainder by a first mortgage at reasonable terms. The second group, having approximately from 25 to 40 per cent of the cost, may be able to arrange a first mortgage for the full amount remaining, with a building and loan association, or must place a second as well as a first mortgage on the property, with one of various lending agencies. In the latter case the financing burdens begin to mount up, the discounts or other charges for second mortgages frequently make the real interest as much as 18 per cent per annum. In this connection the pamphlet states: "In many communities the high rates charged for second-mortgage funds have had a tendency to discourage home-building. In some of these communities this situation has been partly overcome by chambers of commerce and other local groups.

"In Gardner, Mass., a group of about 100 business men, cooperating with the local chamber of commerce, agreed to become liable to the extent of $1,000 each on second-mortgage-note indorsements of a committee which they formed. No actual cash was required of the members of this group, but by thus lending their credit they were able to obtain second-mortgage funds for home owners from a local bank at a low rate of interest and without a discount charge. Similar plans were used in several other cities.

"A second-mortgage company was formed in Providence, R. I., to provide funds for periods of 50 months at a total discount of 5 per cent, covering the whole term. This company helped to relieve the second-mortgage situation in two years. It loaned several hundred thousand dollars at relatively low rates, and through its operations caused other local second-mortgage agencies to reduce their charges.

"In some sections lumber dealers assist in solving the problem, and at the same time increase their sales, by indorsing the second-mortgage notes of home builders who purchase material from them."

If the borrower's capital is so limited that a second mortgage cannot be arranged to bridge the entire gap, usually a third mortgage is necessary, or else a land contract is entered into, whereby the buyer obtains possession on a small down payment, but does not acquire title until he has paid 50 per cent, or some other percentage, of the contract price, a mortgage then being given for the remainder. The third-mortgage method involves still heavier burdens than does the second-mortgage; and the land contract is open to sharp practices and has other disadvantages, although it may make ultimate home ownership easier, in method at least, than other common methods.

The pamphlet gives practical advice to the prospective borrower on how to proceed, with proper precautions; and in discussing possible improvements that may be attained, with resultant benefit to the owner, the builder and the community, it suggests an increase, safeguarded by amortization provisions, in the percentages advanced on first mortgages, to 60, 65 or sometimes even 66 2-3 per cent; efforts by groups of business men and others to facilitate home financing in their localities; the cooperation of first- and second-mortgage agencies as to appraisals, title searches, etc., where relating to the same piece of property; a thorough and comprehensive study of the operation of usury laws, in view of the frequently expressed opinion that these at present are largely responsible for high second-mortgage charges, and that lower actual rates for such loans could be brought about by revising the laws and obviating the necessity of roundabout methods; and that in states where the mortgage laws and laws affecting land contracts are so unsatisfactory to lenders as to limit the supply of capital, consideration should be given to remedial legislation consistent with justice to borrowers.

Space for Head-in Parking Relieves Congestion and Facilitates Suburban Street Widening

By E. A. WOOD
CITY PLANNER, DALLAS, TEXAS

IN the absence of a zoning ordinance in Dallas, neighborhood stores in residential districts are being set back to a minimum distance of 22 feet from the face of existing curbs. This is done primarily to permit customers to park head-in to the curbs entirely out of the lines of moving vehicles. Such procedure permits future widening at a minimum cost and furnishes an opportunity to stop and shop.

This practice began in Dallas about eight years ago and was suggested as a practical means of keeping building lines intact in residential areas. However, its connection with street widening immediately became evident. Strangely enough, it became popular with the owners of property for the reason that chain stores refused to purchase or lease property that failed to provide this facility for the public.

In operation it is very simple. All cement and concrete contractors in Dallas are bonded before they are licensed to lay sidewalks or curbs and gutters in city streets. The ordinance covering this type of work also provides that the contractor must take out a permit before starting work. Sidewalk inspectors from the City Engineer's department enforce this ordinance, and little trouble is ever experienced in its enforcement. It is therefore necessary for builders to notify the city in advance of actual work, and contact is maintained at all times.

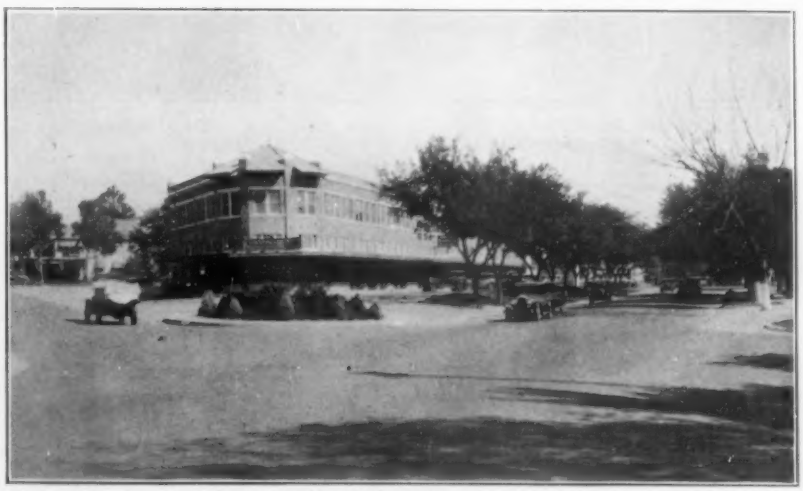
The city's minimum requirement on head-in parking is 22 feet back from the face of curb. This is made up of an 8-foot sidewalk space and 14 feet for an automobile, and has been found to be ample space. It permits drainage to pass in the gutters without being impeded by rear wheels, and it permits car bumpers to project 18 inches over sidewalks without interfering with pedestrian traffic. Greater setbacks than 22 feet are used in many instances, but traffic interference results from parking an additional car behind the first.

In the actual construction of a head-in parking space, the existing curb and gutter are removed and a new gutter is constructed in the same place, so that drainage is not changed or altered in any way. A concrete pavement is then constructed in the usual way to the new curb line. Straight curb is used rather than rolled curb, because the latter does not offer enough obstruction to stop automobiles. The customary slope of ¼-inch to ½-inch to 1 foot of pavement is used to facilitate drainage.

It should also be noted that this type of construction is not permitted in the interior of blocks unless it has already been started at the block corners. This is to obviate a saw-tooth arrangement.

PRIVATE PARKING AREA IN FRONT OF STORE IN RESIDENTIAL PORTION OF DALLAS

CUT-BACK CURBS IN DALLAS



OKLAHOMA CITY SHOPPING CENTER SURROUNDED BY A CONCRETE PARKING AREA

Progress in Conserving the Pacific Coast Beaches for the Public

By GEORGE W. BRADEN

Western Representative of the Playground and Recreation Association of America

ON November 6, 1928, the people of California, by an overwhelming majority, voted $6,000,000 for state parks, this amount to be matched by an equal amount of public or private funds, making available a total of $12,000,000 for saving the mountains, rivers, lakes, beaches and historic landmarks of California. It is definitely agreed that a very generous proportion of the available funds will be used for conserving or for securing additional beaches in Southern California for the use of the public. The two chief projects now being agitated are the Laguna Beach project in Orange County and the Malibu Beach project in Los Angeles County.

Certainly the outstanding recreation problem of the entire Pacific Coast as viewed from the standpoint of interest and service is "the conserving of the beaches." To a degree, interest in the problem is nation-wide because of the ever increasing use of the Pacific Coast beaches by visitors from other parts of the country. The need of additional public beach service is particularly acute in Southern California, where ocean bathing is enjoyed a good part of the year and where the beaches are easily accessible to some three million people, more than two million of this number being residents in Los Angeles City and County.

County Activities

A number of public and quasi-public groups have rendered invaluable service in not only getting the problem before the public through continuous and efficient propaganda but also in getting definite action. In San Diego County, Tam Deering, Executive Secretary of Community Service, following a campaign of approximately two years, secured the passage of a county ordinance requiring all new subdivisions to dedicate the beach frontage between the highway paralleling the beach and mean high tide, to the general public.

In Los Angeles County, the Citizens' Committee of Two Hundred on Parks, Playgrounds and Beaches, with Hugh Pomeroy as Executive Secretary, and the Department of Playgrounds and Recreation, with George Hjelte as Superintendent, are continuing a most effective campaign for securing additional beach frontage in Los Angeles County and the adjacent counties of Orange and Ventura, with the beginning of concrete results. During the past year the Department of Playgrounds and Recreation reclaimed an area of 26 acres for beach recreation purposes by dredging 1,000,000 cubic yards of sand from the harbor. The U. S. Government breakwater, 3 miles long, was transformed into a recreation pier by the building of a boardwalk upon it. The Department has just completed, at a cost of approximately $50,000, one of the finest municipal marine club-houses in the United States. Approximately 4.5 miles of city-owned frontage is serviceable for surf bathing.

At Santa Monica, out of a total beach frontage of 2.85 miles, 1.7 miles, or 37 per cent, is publicly owned. Fortunately, the publicly owned beach is not all in one piece but is distributed along the ocean front, thus making it fairly accessible to all sections of the city.

A report just received from Dwight Murphy, President of the Park Board at Santa Barbara, states: "Santa Barbara has 6 miles of ocean frontage within the city limits, of which approximately 2½ miles are publicly owned." The city has just completed a wide boulevard with 10- and 15-foot concrete sidewalks on the ocean side. This is located so as to give from 150 to 500 feet of beach between the boulevard and tide line, thus protecting for all time for public use a large part of the ocean frontage serviceable for surf bathing. Last year a public-spirited citizen made

A PART OF THE CABRILLO SHORELINE FROM THE SAN PEDRO BREAKWATER, BEFORE THE GREAT BEACH FILL WAS STARTED

CABRILLO SHORELINE AFTER THE LOS ANGELES PLAYGROUND DEPARTMENT BROUGHT A MILLION CUBIC YARDS OF SAND TO FORM A "MAN-MADE" BEACH

a gift of $125,000 for a casino and beach bathhouse. An additional gift of $200,000 has also been secured for the building of a break-water and recreation pier to protect the yacht harbor.

San Francisco is developing a marine park and a bathing and yacht harbor on the Golden Gate at a cost, when completed, of approximately $1,000,000. The project will make available, not only a protected yacht harbor, but a safe bathing beach for some 50,000 children and adults.

In Washington

Ben Evans, Superintendent of Recreation, Seattle, reports a service of twelve public bathing beaches on Puget Sound, Lake Washington and Green Lake, used by upwards of a million people this past summer. Four thousand were taught to swim as a result of the annual "Everybody Swim" campaign.

Tacoma's waterfront extends from Day Island to Brown's Point, a distance of 18.2 miles. Approximately one-third is devoted to docks and waterways, while the remaining twelve miles is beach frontage. Point Defiance Park, one of the finest city parks in the West, with its virgin forest extends for 3.77 miles along this beach. The remainder of the beach frontage is privately owned. The city also owns approximately half a mile of beach frontage in three places outside the corporate limits. The Metropolitan Park Board of Tacoma feels that its chief problem for the present is not the securing of additional frontage but the protection and development of frontage already owned.

It is being increasingly recognized that the problem is much greater than simply one of providing for bathing in the open surf, and that increasingly a general recreation service in addition to bathing must be made available for the millions of people who go down to the water for the day or for longer periods. A number of Pacific Coast cities have developed balanced service marine recreation parks, including Seattle, Tacoma, San Francisco, Alameda, Los Angeles and Long Beach.

During 1928 Long Beach voted bonds for more than $2,500,000 for a horseshoe recreation pier, and a fill-in marine recreation park of several acres, which will be the site of the new civic auditorium. Inside the horseshoe recreation pier will be a protected bathing beach and large acreage for quiet boating. In addition to this outstanding development, the city has by dredging created a splendid tide-wash and tide-controlled still-water lagoon bathing beach more than 6 miles in length.

It is estimated that the attendance saturation point of Los Angeles County beaches, with a coast line of 69.7 miles, is 750,000 persons, and that to protect the future, a service for at least 2,000,000 persons must be provided. San Diego County coast beaches, including the 43.5 miles of ocean and bay frontage within the city of San Diego, have a present estimated saturation point service of 500,000, Orange County 500,000, and the Ventura County beaches 100,000.

SANTA BARBARA COASTLINE DIRECTLY IN FRONT OF CITY

THE BEACH AT SEASIDE, ORE.

New Jersey Governor Opposes Leasing Park Lands for Airport

A BILL passed by the New Jersey Legislature which would permit the leasing of municipal parks lands for airport purposes, was returned unsigned recently by Governor Harry A. Moore, who held that the measure opened the way to corruption and fraud.

"Lands acquired for park purposes are, in many instances, a public trust," the Governor said in his rejection message. "Our parks are all too few and too valuable to the people to permit of their diversion for other purposes. This is especially true in our congested areas.

"Under this bill, such lands may be bargained away, it matters not how they have been acquired—whether from public-spirited citizens by gift, from moneys raised by taxation, or even lands acquired by condemnation proceedings.

"Park lands, such as contemplated by this bill, are in many instances of immense value, and to lease them for what the bill calls a reasonable consideration paves the way for fraud. Further, they may be leased for a term of years without restriction, which may be for years and it may be forever."

Photograph by McMurry

RESIDENTIAL FIRE-HOUSE, SACRAMENTO, CALIF.

Small Public Buildings of Architectural Merit

THE excellence of design of small public buildings now being erected in every part of the country is the subject of a recent, elaborately illustrated article in *The Architectural Forum*. Some splendid examples of

Photograph by Frances Benjamin Johnston

BARNSTABLE TOWN OFFICE BUILDING, HYANNIS, MASS.

buildings, widely varied in the character of their design and in their geographic representation, are discussed in detail. These include, among others, the Town Office Building of Barnstable, at Hyannis, Mass.; a notable group of fire-houses located in New York, New England, Florida, and California; and a comfort station representing a departure from the more conventional styles of architecture.

The new Barnstable Town Office Building, at Hyannis (J. William Beal, Sons, architects; L. Frank Paine, associate) is described as a simple Colonial structure (actually "more Georgian in its character than Colonial," but representing "what the Colonial was derived from" and being therefore "quite consistent with architectural propriety"). To quote:

"It comprises a two-story central building balanced on either side by a one-story wing. A classic cornice with brick parapet above emphasizes the top of the main building, while simpler cornices and parapets crown the two low wings. Arched windows and a semi-circular porch of rather heavy classical design emphasize the main story and entrance to the building. On the first floor is a large hearing room or town hall. Suites of offices occupy the rest of the first floor. A stairway at one side of the entrance hall leads to a second story where seven smaller offices are located. This second floor is so planned that the one-story wings may be built up another story and connected with it by means of doorways at either end of the central corridor."

According to the architects' cost and construction data sheet, reproduced in the article, the outside cost of the building was $79,336.49.

Two of the fire-houses described, those of Sacramento, Calif., and Palm Beach, Fla., illustrations of which are herewith reproduced) represent the "Mediterranean" type of architecture, so successfully revived in California a number of years ago for all sorts of buildings, and more recently revived in Florida. To consider the Sacramento structure first (Dean and Dean, architects):

Simple and Compact

"The character and plan of the building are plainly indicated in the exterior elevation. The main apparatus room is made the chief element of the design with its two large arched doorways and low tiled roof, which give the effect of an old farm barn in southern Italy. The design of the chimneys, and the low, one-story rooms which abut the higher dormitory wing of the building, are suggestive of the sunny South. The plan is simple and compact. The large, deep apparatus room is of sufficient size for two pieces of fire apparatus. A paved passage leads from this room into the living portion of the building, where there are a dormitory, lavatory, living-room, and kitchen."

"The Spanish style has been consistently and attractively used in the design of the fire-house at Palm Beach. . . . The irregular plan and grouping of the different parts of the design are interesting. The apparatus room, which is the principal part of any fire-house, is the chief feature. Three large doorways, designed in the manner of an open arcade, are surmounted by a long covered gallery, onto which open the dormitory and recreation room on the second floor. A locker-room and lavatory occupy the rear of the second floor. On the third floor, combining in one group with the tower of the building, are living-room, bathroom, kitchen and dining-alcove. These are intended for use of the fire lieutenant in charge of the station, as the main dining-room for the firemen, together with a large kitchen and pantry, and the operator's

Photograph by F. E. Geisler

FIRE-HOUSE, PALM BEACH, FLA.

and chief's offices, are located in a one-story wing adjoining the apparatus room. . . . The structure as a whole composes well and convinces one of the appropriateness and desirability of using so definite a style as the Spanish for the design of a purely utilitarian and municipal building in a Florida town. The tinted stucco walls, the Spanish tile roof, and the stone door trim further add to the distinctive character of the building. . . . The spacious overhanging gallery aids in taking away the "public building" aspect so common to structures of this nature and helps it to fit pleasantly into its surroundings, which are those of a high-class residential district. At the same time the utility of the layout is not interfered with in any way."

Charles J. Lawrence is the architect. The building cost was $40,000.

"The fact that a fire-house is occupied for the greater part of the day as a place of residence makes it additionally appropriate that the building should be designed as a house and not as a large stable or garage."

This comment is equally pertinent to the buildings just described and to the White Plains, N. Y., fire-station (Theodore Richards, architect) here reproduced.

Picturesque as Well as Homelike

"This two-apparatus fire building may logically be called a fire-house. The character of its design distinctly marks it as a house. . . . The building is not only well designed but is well located at the corner of two streets in a suburban section. The several gables, the long, sloping, deeply pitched roof, and the tinted stucco walls are all features which add to the domestic quality of the design. The roof is high and its pitch is sufficient to permit excellent head room for two large dormitories, locker-room, wash-room, and officers' bedroom on the second floor. The proverbial brass pole, as well as a stairway, connects this second floor with the floor below, where there is located a deep apparatus room sufficiently large to take two pieces of apparatus, one behind the other. Parallel with this long, deep room is an office for the fire captain or lieutenant, and a large living-room, kitchen and lavatory. . . . Compared with the typical fire-engine house of 25 or 30 years ago, the design and plan of this building mark a great step in advance. The building is convenient, spacious and sensibly planned. Rooms for all the various requirements of the fire fighters' residence are here, provided in suitable locations. The architect has succeeded in obtaining not only a homelike but a picturesque quality in this design."

The comfort station at St. Petersburg, Fla., of which Henry L. Taylor is the architect,

"is designed in the style known as 'Lombardy Romanesque,' which is one of the most interesting in Italian architecture. Although one of the lesser important types of municipal buildings, the excellence of this design proves that even such buildings as comfort stations can be made to have architectural interest and merit. Characteristic of the style, most of the detail, such as the main cornice and frieze, some of the wall panels and the base course, is carried out in brick. In this type of design it is thoroughly consistent and appropriate, as well as pleasing to the eye, to use the typical corrugated Spanish tile. Any type of flat tile would have made the building much less interesting. The octagonal plan is simple, well-balanced and direct."

The architect has here used small exterior vestibules which add to, rather than detract from, the exterior interest of the station.

FIRE-STATION, WHITE PLAINS, N. Y.

Photograph by M. W. Reeves

COMFORT STATION, ST. PETERSBURG, FLA.

"Welcome to Our City" —Saying It Effectively

By G. K. PLANT

THE ATTRACTIVELY DESIGNED, CENTRALLY LOCATED GATEWAY TOURIST BUREAU (ABOVE), AND ONE OF THE "BADGES OF DISTINCTION" (BELOW) CONFERRED UPON VISITORS

"MORE than her gates, the city opens her heart to you." This is the inscription graven above the entrance to the beautiful grey stone building standing in a trim triangular garden at the very doorway of Minneapolis, Minn., its colonnaded wings flung wide like the arms of a smiling hostess waiting to welcome her visitors.

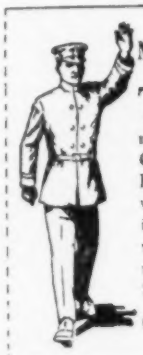
The Gateway Tourist Bureau of the Minneapolis Civic and Commerce Association is located a stone's throw from the Union Station with the main automobile highways leading to it. From a small beginning a number of years ago, it has grown to a tremendous institution. Visitors actually registered there during 1927 numbered 54,939 and included tourists from every state in the Union, seven provinces in Canada, and sixteen foreign countries. Other thousands of visitors were greeted by traffic police, given Courtesy Tags and rendered various sorts of service without going in person to the Bureau. More than 300,000 pieces of literature, highway maps, visitors' guides to the city, itineraries of sight-seeing trips, directories of summer resorts, copies of traffic rules, etc., were used in assisting tourists; 313,662 inquiries were answered over the counter; 118,634 by telephone, and 9,261 by mail.

From January 1 to September 1, 1928, the Bureau registered 56,810 guests as compared with 45,947 during the same period in 1927. The total number of inquiries during the eight-month period was 425,522 for 1928 as compared with 343,273 for 1927. The month of July, 1928, showed a greater percentage of increase, both in registration and in inquiries over the same month of the preceding year, than ever before. (Registration figures and inquiries are recorded independently, although persons who register are frequently inquirers also.)

Visitors to Minneapolis increased 756 per cent during the two years 1925-1927. The 1928 figures will show an additional enormous increase. These figures are directly attributable in large part to the fact that the whole city is organized to welcome guests, and that practically every civic agency cooperates in extending the "glad hand" to all newcomers, the Gateway Tourist Bureau being their consolidated clearing-house. The Bureau's quarters are provided by the Board of Park Commissioners and financed by the Minneapolis Civic and Commerce Association, which is analogous to the chamber of commerce organization elsewhere. Its official aides include the Mayor, the Police Department, the City Council, the State Highway Department, the Automobile Club, the Weather Bureau, and the Ten Thousand Lakes Association, the service clubs, the hotels, merchants and all the transportation companies, including those that operate busses, trains, street cars, and airplanes.

This Is How It Works:

The out-of-state visitor driving into Minneapolis is stopped by the first policeman who scans his license plate, and is given a tag. His first thought may be: "So! Here's another place where the traffic motto is 'Treat 'em rough!'" When he has opportunity, however, to examine the tags (he is almost certain to collect several on his way to wherever he is going), he finds that it is an official welcome, as shown in the accompanying reproduction, and that there is a small map of the city on the reverse side.



MINNEAPOLIS WELCOMES YOU!

THE MAYOR cordially invites you to the **Tourist Information Bureau of the Minneapolis Civic & Commerce Association, Gateway Building, Washington, Nicollet and Hennepin Aves.,** where you will be presented with a Visitor's Emblem for your car, conveying the official hospitality of the City, together with information and maps which will be valuable to you during your visit to our City and State.

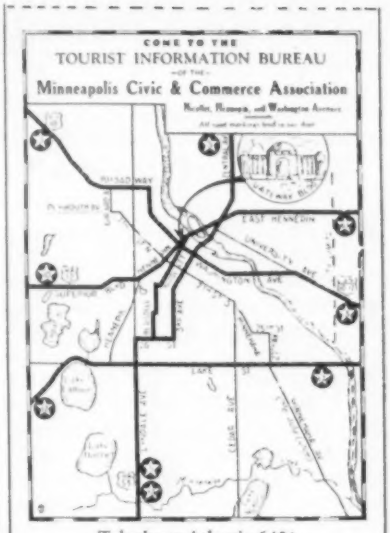
GEO. E. LEACH, Mayor

(OVER) **No A49999**

No A49999

IMPORTANT

Minnesota Law requires visiting motorists to apply for Visitor's Permit, if they intend to remain in the State for more than ten (10) days. Ask at the Gateway Building.



Telephone Atlantic 6401
After business hours call Atlantic 5341

THERE IS AN IMMEDIATELY PRACTICAL ASPECT TO THE "WELCOME" TAG, ON THE REVERSE SIDE OF WHICH IS A CITY MAP. THIS SHOWS, INCIDENTALLY, THE SHORTEST ROUTE TO THE TOURIST BUREAU FROM ANY GIVEN POINT

Accepting the invitation to the Gateway Bureau, the visitor is registered and furnished with a metal Visitor's Emblem, a fac-simile of which is also herewith reproduced, to be attached to the radiator of his car. Its object is to enable traffic officers to recognize visitors and extend to them assistance and forbearance in the matter of traffic regulations. Copies of traffic rules, road maps, game laws, etc., are supplied as required, and visitors planning to be in the state ten days or longer may get, through the Bureau, a non-resident motorists' permit good for 60 days, thereby obviating the necessity of going personally to the State Capitol in St. Paul. Fishing licenses are sold also, as a convenience to sportsmen.

Up-to-the-minute information is supplied on road conditions and routings to any point in the country. The Bureau has the bulletins of highway departments in every state in the Union and in the Canadian provinces, and information in them is supplemented by weekly postcard questionnaires sent by the Bureau to all state highway departments and to automobile clubs throughout the country. Tourists are given self-addressed postcards and asked to return them with reports on roads just traversed. The United States Weather Bureau furnishes nation-wide forecasts which enable the Bureau's staff to forecast with accuracy road conditions which will result in any part of the country from a certain sort of weather on certain types of highways. The long-distance telephone is used in collecting and disseminating travel information. Bus companies operating out of the city provide reports on the highways they cover, and in the Bureau's office is a road map which shows day by day the exact condition of all the trunk highways in Minnesota. The road reports are typical of the thorough information provided.

Detailed information on recreational opportunities in the state is the Bureau's specialty—hunting, camping, swimming, canoeing; it is even prepared to report on how the fish are biting in any part of the state! This information is supplied by telephone through a special arrangement with the hardware dealers of the different districts.

But there are no limits to the services rendered. A Michigan resident wanted to locate "Mr. A. Anderson" of Minneapolis who had saved his wife from almost certain death in an automobile accident. There are more than 200 individuals listed in the city as "A. Anderson," but the right one was located and with him another man whom the grateful husband had been seeking and whose name he had not even known. A letter in obscure Dutch dialect untranslatable at the University was deciphered for its recipient. "A man named Jones, in the real estate business" was located of the time lost by the hundreds or thousands of people who are delayed in the parking of that car. I venture the guess that it would not take long to show that from the standpoint of the community we could better afford to buy private lots on Fifth Avenue, New York, and raze the buildings for parking spaces rather than have our streets cluttered as they are now in the congested communities of the country. Why permit motor-busses to occupy our streets for long-haul business when subways or elevated roads can do it better and quicker? Why not reduce our public transportation in congested areas to an orderly controlled and regulated system best adapted to our needs? And why not do it now?"

on a train as he passed through and notified that his wife had been taken very ill. These are but a few details. The Bureau trains auxiliary workers who serve in hotels and at the Auditorium during big conventions.

Minneapolis enjoys the symbolic role of Hospitality Incarnate in which she appears to visitors. And serving her visitors, she serves herself. Hospitality has become big business. Enormous sums are named in discussing the city's tourist income. The large amount of new money brought in, in the first, or fifth, or tenth turnover, finds its way into almost every channel of the community's commercial life. And Minneapolis has become convinced that the tourist and convention business is a real city builder. For, she reasons, satisfied visitors become "repeaters," as well as missionaries in the cause, while permanent residents and investors are attracted by the "show window" of the recreational appeal.

The Parked Car as a Community Expense

THE use of street space for the parking of automobiles, in districts of high values and congestion, was the subject of criticism on the part of Owen D. Young, Chairman of the Board of Directors of the General Electric Co., in the course of an address before the recent annual convention of the American Electric Railway Association. He said:

"I have often wished that some competent statistician would compute and state the cost to the community of parking a car in a congested street on land of tremendous values. Let him figure the value of the space, measured by surrounding private values. Let him figure the cost

Wise Planning Develops an Important City Asset—Its Personality

By LT. COL. J. FRANKLIN BELL

CORPS OF ENGINEERS; ENGINEER COMMISSIONER, DISTRICT OF COLUMBIA, 1923-7

MAKING plans for a city without giving consideration to characteristics and policies is about as ill-advised as making a suit of clothes for a man without taking his measurements, finding out what kind of suit he wants, and ascertaining how much he can afford to pay. We cannot expect individuals to afford the ideal collectively when only a small percentage can afford it individually. I once heard a city planner say that he prepared ideal plans and then left it to the city authorities to find the means to carry them out. Few of us can afford to so conduct our private affairs; father's pocketbook cannot stand the strain. Nor can the pocketbook of the city fathers stand the strain required to carry out ideal plans. If big business tried to carry on in that way, it would soon be broke instead of big.

City Characteristics

Cities, like individuals, have characteristics, and that is as it should be. This would be a drab world were all people alike, no matter how perfect. A few redeeming faults sometimes add to the charm of a personality. Interest in European travel lies largely in finding cities, towns, and villages which through centuries have developed characteristics that differ from those of their neighbors. American cities and towns have not developed these distinctive characteristics to the same extent as their European sisters, but distinctive characteristics are not lacking in America, and cities are to be encouraged to keep them rather than to imitate their neighbors. "Be yourself" is good advice for a city as well as for individuals.

Washington is a city of attractive public buildings, wide streets lined with beautiful trees, small parks, and low and irregular building lines. Pittsburgh is a great industrial district; three river valleys remade by man; narrow streets and tall buildings in the Golden Triangle; valleys congested with factories and railroad tracks abutting on busy rivers; small towns and civic centers on the surrounding hills. Each city has a proper pride in its predominating characteristics; each would make a mistake if it tried to imitate the other. But cities should develop their characteristics so as to make the most of their opportunities, just as people should and some do.

The personal oddity which is the cause of embarrassment and chagrin to some individuals afflicted (?) may be no handicap to a big man. Ex-President Taft's excess flesh is part of that genial personality which is esteemed so highly. Prominent teeth may worry some people, but they never cramped the Roosevelt smile. Lindbergh became a national hero more by just being himself consistently than as a result of his flight to Paris. Bobby Jones plays his own style of golf and gets along reasonably well.

Individuality and Responsibility in City Development

Before development plans can be made intelligently for any business, consideration must be given to the characteristics of the business, and the responsible officials must determine the policies which shall govern. The conduct of municipal affairs is the biggest kind of business. Many city plans remain in the beautiful picture status because too little consideration is given to the characteristics of the cities for which the plans are made and the responsible city officials have not had a part in determining the policies that must govern in making and carrying out the plans.

But do not conclude that being oneself is enough in itself to attain success; the world is full of men who fail because they do not improve themselves. City planners should endeavor to develop cities along lines consistent with their natural characteristics. "London is a man's town, with power in the air, and Paris is a woman's town, with flowers in her hair," and who would want either to try to be like the other?

Historical Background

Many a city has a historical background that can and should be preserved as one of the city's outstanding characteristics. We excuse ourselves, sometimes, on the ground that our country is new and that we do not have the historical background on which is founded the interest we have in European communities. We need have no regrets; the settlement and development of this country has provided a wealth of historical background. The old Indian trails and pioneer roads across and along the Appalachian ranges are overgrown with briars and weeds. Their locations are even now almost unknown. The battlefields where our ancestors fought to create a United States of America are little known. One can travel for days in the valley of the Shenandoah and in the Piedmont country of Virginia and find little evidence of the most spectacular and interesting military campaigns of history, and the local people seem to have but a hazy knowledge of them. France has made her historical places a national asset—both financially, as a Mecca for tourists, and for the patriotic education of her own people. Will California preserve the Spanish Missions with appropriate surroundings, or will the urge for real estate developments and larger populations reduce them to the sad state of Braddock Field and Fort Duquesne?

Personally, I care little for the mass of marble and granite which weighs down the field of Gettysburg, with regimental monuments so grouped together that no military man could visualize any such battle lines; I see little historical value in the expenditure of funds to magnify the glory of an individual or of an organization, but markers to show graphically and by brief descriptions what occurred there of national moment would be of great value. Enough of the land should be retained in its natural state to provide a fitting setting.

National shrines like Mount Vernon are worthy of preservation, and monuments such as the Washington Monument and the Lincoln Memorial are admirable because of their national significance and tendency to perpetuate ideals. But monuments to individuals of whose character and attainments future generations will know little, have scant value outside the boundaries of cemeteries. Their erection is indicative of a desire to glorify an individual rather than to perpetuate ideals or preserve things of historical value. In my humble opinion, the proposed erection of a Roosevelt Memorial in Potomac Park at Washington will detract from the simplicity and grandeur of the Washington Monument and the Lincoln Memorial, while the creation of a Roose-

velt Park along the palisades of the Potomac would tend to preserve a love for outdoor life and the enjoyment of the beauties of nature, of which Roosevelt was the outstanding exponent of his time. His memorial should serve to perpetuate his ideals.

Municipal Policies

Be the local characteristics as different as those of Washington and Pittsburgh, certain fundamental policies must govern in planning the development of cities. The methods adopted must vary somewhat, and the degree of perfection in accomplishment to be attempted must depend on the available means. Only a few of the most important will be mentioned:

(*a*) *Provision must be made for comfortable and attractive home surroundings.*

Intelligent zoning and due attention to the requirements of an automobile age are essential. Public utilities must be provided for comfortable and sanitary living. The city officials and the residents must do their respective parts in building up neighborhood pride in the cleanliness and beauty of public space and private yards.

(*b*) *Comfortable and attractive school buildings, with adequate provision for heating, lighting, and playground space must be provided.*

Few old school buildings have the provisions stated above. Good health and good eyesight are certainly as important as education. Children engaged in play in adequate playgrounds are removed from the dangers of traffic and from the objectionable remarks that are likely to be heard in idle congested groups. Schoolhouses of attractive exteriors and interiors can be built for little more cost than the factory-like structures sometimes seen. Perhaps we cannot prove that environment has its effect in developing character, but we feel sure it has.

(*c*) *Transportation facilities adequate to meet the demands of the public for comfortable and rapid transportation at a reasonable cost must be provided.*

It is manifest that if we were laying out the street-car and motor-bus lines of a city to serve the public best, we would not lay out the same lines that we would were we working for a transportation company with the interest of the stockholders as our primary consideration and with a wary eye on the activities of rival transportation companies.

(*d*) *Athletic fields and small park areas must be provided before it is too late.*

Vacant lots serve a useful purpose, but tend to lull the public into a feeling that athletic fields and park areas are not urgently needed. Then the vacant lots disappear and, too late, the aroused citizens demand what is no longer possible in their neighborhood except at excessive cost for improved land.

The greatest extravagance in this regard is failure to buy at the right time. Why let the real estate man get the unearned increment?

(*e*) *A well-designed highway plan must be provided to keep the city from developing like a crazyquilt.*

Many cities are now providing highway plans, but too many of the citizens think that that is about all there is to city planning. Street planning cannot be carried on intelligently without giving thought to the sewer and water-main plans, and it is remarkable how intimately associated highway, sewer, and park plans are.

Conclusion

To preserve the characteristics of your city and to guarantee that the planning will be done with due regard for the policies that must govern in carrying them out, make your city officials part of your planning body. If they will not function, get new ones. Then build conservatively and permanently. Remember that planning must go on continuously. Washington had the L'Enfant plan, and many people still seem to think that the National Capital was planned for all time and that all that is necessary is to carry out the L'Enfant plan. The L'Enfant plan is primarily a highway, small park, and public building plan, covering only about one-tenth of the area of the District of Columbia, whereas present-day planning for the National Capital must be carried far into the surrounding states of Virginia and Maryland, and attention must be given to dozens of matters which now enter as factors in city planning and which were unknown in L'Enfant's time.

Create a planning commission, make your city officials a part of it, give it broad powers, and make it permanent.

The Pennsylvania Bureau of Municipal Affairs—What It Is and What It Does

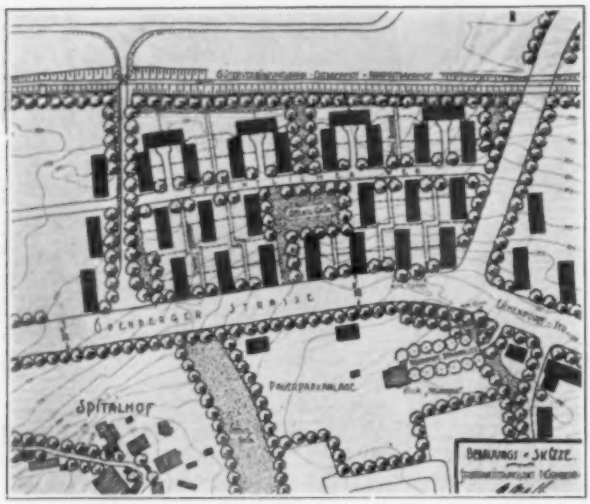
THAT the Bureau of Municipal Affairs of the Commonwealth of Pennsylvania is a center such as exists in no other state for the provision of certain services to the municipalities and other local entities within its boundaries, and that it exerts a powerful influence for more progressive methods of local governmental administration and development, are facts that are generally known to those who attempt to keep abreast of municipal activities. Just what the Bureau is, however, what it does, and how it does it, are matters of much less familiar knowledge. It is therefore of interest to have Francis J. Mulvihill, Chief of the Division of City Planning and Municipal Engineering for the Commonwealth of Pennsylvania, give a concise account of the Bureau. This is what he does in the following paragraphs, which are quoted from a paper on the "Progress and Advancement in City Planning, Community Development and Municipal Engineering from Experiences of Pennsylvania Cities," which he delivered at the recent Detroit conference of the American Society for Municipal Improvements:

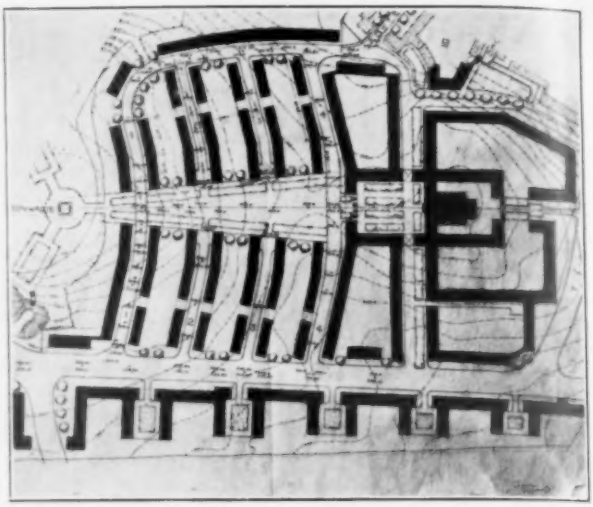
"The Bureau of Municipal Affairs is in the Department of Internal Affairs at Harrisburg. Hon. James F. Woodward is Secretary of Internal Affairs, and J. Herman Knisely is Director of the Bureau. The law provides that the said Bureau shall gather, classify, index, make available, and disseminate data, statistical information, and advice that may be helpful in improving the methods of administration and municipal development in the several municipalities of the Commonwealth and shall maintain for the benefit of the municipalities a publicity service to install or assist in the installation and establishment of modern systems of accounting in the various municipalities of the Commonwealth; and in order to promote a comprehensive plan or a series of plans for the probable future requirements of cities, boroughs, or townships of the Commonwealth, either separately or jointly, in respect to a system of traffic thoroughfares and other highways or main highways, transportation of every sort, suitably coordinated sites for public buildings, parks, parkways, playgrounds, and other public uses, the preservation of natural and historic features, and any and all public improvements tending to the advantage of municipalities or townships affected, tending to their advantage as a place of business and residence, and to either make or secure, or assist in making or securing, the necessary surveys, plans and information.

"The Bureau of Municipal Affairs serves primarily as a clearing-house for data concerning municipal endeavor. It collects and distributes the experiences gathered in its state-wide service.

"It will upon request furnish material of interest to municipalities outlining the best thought, and recognized modern practice, not only in Pennsylvania but in other states. Its aim presupposes an effort for standardization and otherwise improving municipal administration in Pennsylvania. Its organization is made up of a small staff of qualified technically trained men. Its policy is not to encroach on the field of the professional practitioners. It encourages the employment of the expert in the various allied fields of professional practice when necessary.

"Every subject that is of interest or the concern of our communities, their citizens and officials, is the Bureau's interest, too. Here are some of the subjects: ordinances; planning and zoning; municipal engineering; streets; water-supply; sewers and sewage disposal; garbage and waste collection and disposal; street lighting; shade trees; police and fire protection; assessors; treasurers; comptrollers; puchasing agents; city clerks; borough and township secretaries; inspectors of health, food, milk, buildings, plumbing."





TWO PLANS FOR RESIDENTIAL SUBDIVISIONS IN NUREMBERG WITH CUL-DE-SAC STREETS AND CENTRAL PARK SPACES AS DISTINCTIVE FEATURES

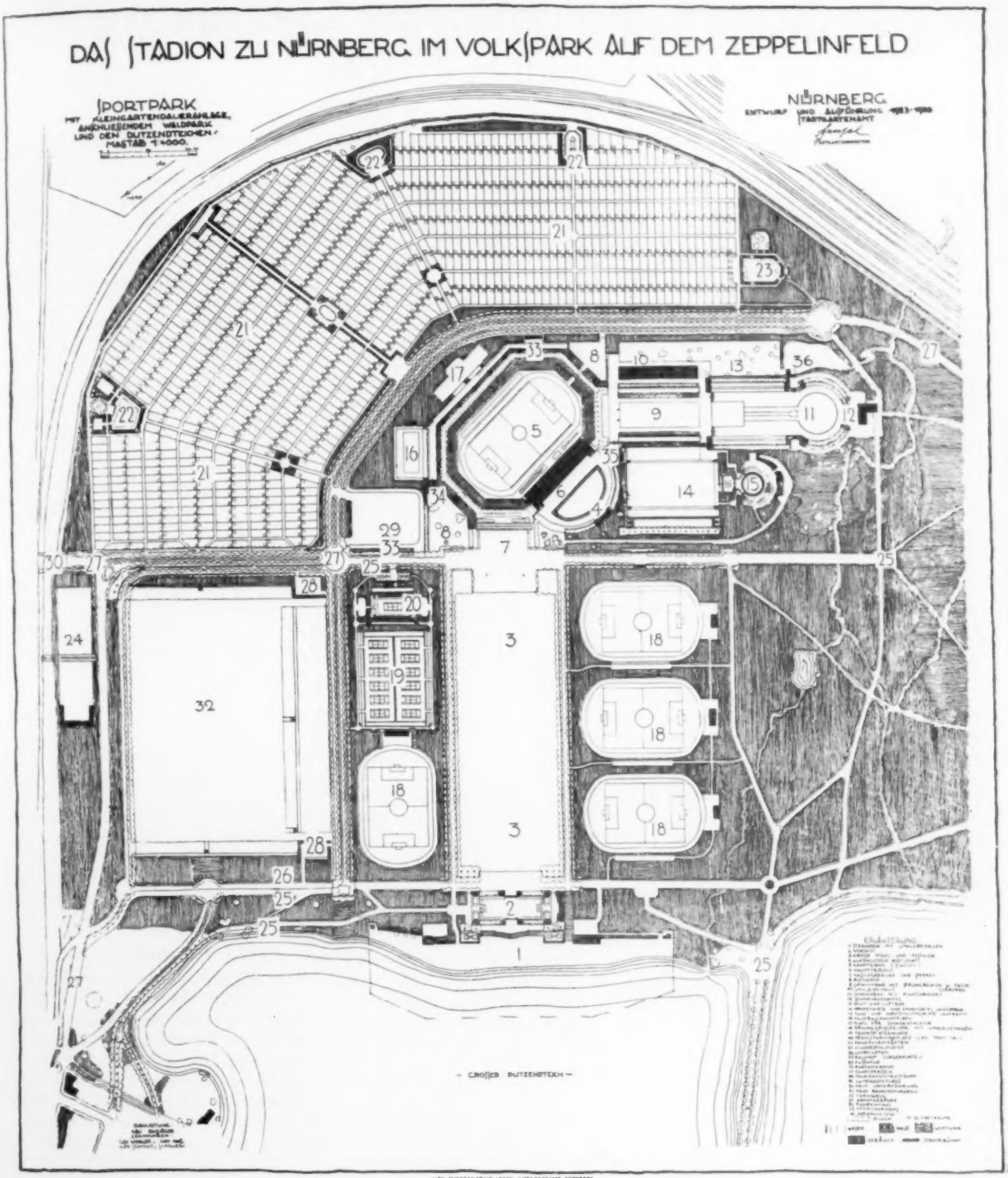
Modern Ideas from Ancient Nuremberg

AMERICAN visitors to Germany are attracted in increasing numbers to Nuremberg by the charm of its medieval planning and architecture, much of which the city has had the good sense to preserve. But the tourist who is interested in modern city planning ideas will find them, too, in Nuremberg. At the Stadterweiterungsamt, for example, he will find the plans which are reproduced at the top of this page, in which Baurat Prell two or three years ago had anticipated some of the features which are being incorporated into Radburn—New Jersey's new town planned for the motor age.

The visitor may also inspect Nuremberg's magnificent recreation park, with its stadium, swimming pool, and other features illustrated in the photograph reproduced below and in the plan on the opposite page. In the development of the "Sportplatz" idea, German cities are furnishing to their citizens wholesome recreation for all ages, much more beneficial than the pre-war military training.

AIRPLANE VIEW OF NUREMBERG'S NEW STADIUM AND SPORTPARK

In the foreground of this photograph, and in the upper left-hand part of the plan, are shown several hundred allotment gardens—a very popular feature of many European cities



PLAN OF NUREMBERG'S STADIUM AND "SPORTPARK"

1. Bathing-Beach with Dressing-Rooms
2. Court
3. Great Public Holiday Field
4. Soft Drink Establishment
5. Stadium
6. Grand Stand
7. Toll Buildings and Gates
8. Exits
9. Swimming-Pool with Diving-Boards and Shower-Baths
10. Dressing-Rooms
11. Sun-Bath with Wading-Pool
12. Sun-Bath Café
13. Light and Air Bath
14. Hockey Field and Enlarged Sun-Bath
15. Dance and Performance Circle and Running-Track
16. Hand-Ball Courts
17. Court for Heavy Athletics
18. Athletic Practice Field and Dressing-Rooms
19. Tennis Courts
20. Tennis Tournament Court
21. Allotment Gardens
22. Children's Playgrounds
23. Model Garden
24. Warehouse
25. Footpaths
26. Bicycle Path
27. Thoroughfares
28. Bicycle Stands
29. Auto Parking
30. Proposed Subway
31. Proposed New Station-House
32. Gymnastics Field
33. Comfort Stations
34. Pumphouse
35. Porter's Lodge
36. Pre-warming Pool

Regional Government by Cooperative Municipal Effort

By J. CLARK KEITH

CHIEF ENGINEER, ESSEX BORDER UTILITIES COMMISSION, WINDSOR, ONTARIO

THE Essex Border Utilities Commission is the outstanding example in Canada of an organization created by the legislature to deal with regional problems. Fronting on the Detroit River in Essex County, seven incorporated municipalities lie side by side without any apparent municipal division. These communities, with two adjacent townships, had common problems that could be solved efficiently and economically only through cooperation.

The need of an organization to meet these conditions was recognized, and the Essex Border Utilities Commission was formed in 1917. Constituted originally to deal with the related problems of water-supply and sewage treatment, the Commission has had its activities broadened to include the powers of a Board of Health, a Parks Board and a City Planning Board. The Commission consists of twenty-one members, two from each of eight municipalities and five from the city of Windsor. In each case the mayor or reeve constitutes one representative from the community, while the others are elected for a period of three years. Thus the Commission is entirely responsible to the electorate, and its members serve without remuneration. Two members have been on it eleven years, and several others from five to ten years.

The general overhead expenses of the Commission, such as office expense, clerical help, etc., are met by the various municipalities in proportion to the number of its Commissioners on the Board. All capital expenditures are met through debentures issued by the Commission on the credit of, and in proportion to, the benefit which each municipality derives.

Since its inception, the Commission has constructed intercepting sewers at a cost of $400,000, a filtration plant serving all municipalities at a cost of $1,140,000, a Metropolitan General Hospital costing $560,000, and is now engaged on a general plan covering waterfront development and further sewerage extensions which will cost from three to five million dollars. These are tangible evidences of regional cooperative effort, but the most valuable activity of the Commission has been in the preparation of a plan of main highways and boulevards to serve the future needs of the district. In less than two years the highways through Essex County will carry heavier traffic than any other roadways in Canada. A definite plan was prepared almost six years ago. With very minor alterations that plan has been the framework around which the newer sections have since been developed. All subdivision plans of the district must pass through the hands of a special committee of the Commission before they can be registered. During the past eight years upwards of 300 plans have been dealt with, and at least 75 per cent of them were modified in some manner for the betterment of the district. The newer sections of the Essex Border District are not going to be faced with expensive corrective undertakings in the future. The area involved in planning studies covers about 125 square miles.

Cemetery Locations

When an effort is being made to control and direct the development of a district, it is a source of irritation to have something occur which may undo any part of the work that is being done. Reference is being made to cemetery location. The relation between the city of the dead and the city of the living is an important problem in present-day planning. Like all other established physical elements of a city, the cemetery must be provided for and must be given that consideration which will permit it to function with the city and do as little harm as possible to it. The location of a cemetery has in many instances interfered with the best and most logical community growth. It is true that there is hardly a large city that has not witnessed the destruction of one or more of its cemeteries, yet, once established, it stands as a grim sentinel against the demands of urban growth.

As a general proposition, a cemetery should be located away from industries and from the lines of common carriers, but should be in line with the city's residential growth but as far as possible from existing housing. Neither should they be reached by, nor have their entrance from, a highway bearing heavy traffic. In Ontario the location of a cemetery must first be approved by the municipality in which it lies and then by the Provincial Department of Health. Unfortunately, the plan for a cemetery does not have to be registered, and for this reason city planning boards have no control over them if they are outside the city limits but within the city's urban zone. Two cemeteries were recently located adjacent to Windsor, for speculative sale, on a highway which will be the main traffic artery of the district. Funeral corteges and fast traffic are not a combination which will tend to reduce motor accidents. These cemeteries are within our urban zone, but apparently there is no definite control over them.

In Brief

What has regional cooperation accomplished for Riverside, Ford City, Walkerville, Windsor, Sandwich, Ojibway —the Border Cities—and the townships of Sandwich East and Sandwich West? It has removed sewage outlets from five miles of the waterfront on the Detroit River and has made possible the construction of a single treatment plant instead of five or six at intervals along the river front. It has provided the district with filtered water from one central plant instead of from three as a minimum. One efficiently managed Department of Health serves the district instead of seven. A General Hospital has been placed in service for the entire district. More important than these was the preparation of the plan by which and to which the district can grow.

METROPOLITAN GENERAL HOSPITAL, WALKERVILLE, ONT.
Constructed by the Essex Border Utilities Commission for $560,000

The foregoing article is excerpted from a paper presented at the recent convention of the City Planning Institute of Canada.

Parking Regulations

A Statement of General Principles and Specific Recommendations Submitted December 12, 1928, by the Committee on Parking Regulations of the National Highway Traffic Association

PARKING is one of the most important causes of traffic congestion on city streets, and the total elimination of parking, whenever and wherever congestion becomes serious, would greatly facilitate the movement of traffic. However, when motor vehicles are used for business purposes, it is as necessary to stop for the transaction of business as it is to travel, so that it is desirable to limit parking only to such an extent that the restrictions will result in a net benefit to the community.

As the density of traffic increases, the ratio between the loss due to delay by parked cars and the advantages due to the privilege of parking, increases. Various parking restrictions, applied progressively as traffic density increases, tend to hold this ratio down, but in some cases a point is reached where the total advantages arising from the privilege of parking in certain areas at any time during business days, can no longer offset the losses caused thereby. At this point the greatest net advantage to all concerned is obtained by the elimination of parking.

The evaluation of the various advantages and disadvantages involved is of course a matter of judgment, and intelligent judgment must be based upon a careful study and analysis of each individual case.

A few general principles and specific recommendations are contained in the following conclusions. As a step in the direction of much desired uniformity, it was the opinion of the committee that this report should be made to conform, so far as possible, with the Model Municipal Traffic Ordinance framed by the National Conference on Street and Highway Safety. Conclusions 1 and 7 are quotations from the Model Ordinance, except for such slight modification as was necessary to put them in the form of conclusions, instead of legal regulations.

Tentative Conclusions

1. *Definition of parking.*—The standing of a vehicle, whether occupied or not, upon a roadway, otherwise than temporarily for the purpose of, and while actually engaged in, loading or unloading, or in obedience to traffic regulations or traffic signs or signals.

2. Parking, limited only as provided in Conclusions 7 and 8, should be allowed at all times in business districts where it does not cost the traveling public more than it saves those who park, nor interfere with the expeditious movement and safety of street traffic and with reasonable access of vehicles to the curb.

3. As vehicular traffic density increases, every reasonable effort should be made to expedite movement and make it more safe, by the use of pavement markings, traffic signs and signals, the designation of one-way and "through" streets, the restriction of "cruising" by taxicabs, the employment of adequately trained traffic officers, and other aids to traffic safety and facilitation; and traffic ordinances and parking regulations should give recognition to the manifold interests represented by public transportation vehicles.

4. Streets are primarily provided for general public use as lines of communication for pedestrians and for the transportation of persons and merchandise; and the rights of the different classes of traffic to unlimited use of the streets, including the right to park, are subject to the public and civic welfare. The right to move a car is superior to the right to store a car on the public ways, and when or where parking causes a net economic loss to the public through hindrance to safe and convenient travel, there should be limitation of parking, both commercial and private. In the most congested areas of large cities parking should be entirely prohibited during those parts of the day when traffic is heaviest, or, in extreme cases, during the entire business day.

5. All-day or half-day storage of vehicles upon the streets should be prohibited in congested districts by the elimination of all parking during the hours when such vehicles are usually left, or by the imposition of a time limit upon parking.

6. Limiting the time that an individual vehicle may remain parked, except as provided in Conclusion 9, does not facilitate the movement of traffic, and the time limit should not be made so short as to encourage the moving of vehicles from one parking place to another in the immediate vicinity.

7. Stopping, standing, or parking should be prohibited at all times in the following places, except when necessary to avoid conflict with other traffic or in compliance with the directions of a police officer or traffic control sign or signal:

(a) Within an intersection
(b) On a crosswalk
(c) Between a safety zone and the adjacent curb or within 20 feet of points on the curb immediately opposite the ends of a safety zone, unless the (traffic authority) shall indicate a different length by signs.

NOTE.—It is recommended that in no event should vehicles be stopped or parked within 15 feet of the end of a safety zone. The exact distance to be specified might depend upon the width of the roadway, volume of traffic and other material factors.

(d) Within 25 feet from the intersection of curb lines, or, if none, then within 15 feet of the ininterscction of property lines at an intersection, except at alleys
(e) Within 30 feet upon the approach to any flashing beacon, stop sign or traffic control signal located at the side of the roadway
(f) Within 15 feet of the driveway entrance to any fire-station
(g) Within 15 feet of a fire-hydrant
(h) In front of a private driveway
(i) On a sidewalk
(j) Alongside or opposite any street excavation or obstruction when such stopping, standing or parking would obstruct traffic
(k) Upon any street or alley in such a manner or under such conditions as to leave available less than 10 feet of the width of the roadway for free movement of vehicular traffic

8. Double parking should be prohibited at all times.

Personnel of the Committee Which Prepared the Accompanying Report

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John A. Miller, Jr.
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Sidney J. Williams
Director, Public Safety Division, National Safety Council, Chicago, Ill.

In addition to making the report conform as far as possible to the Model Municipal Traffic Ordinance of the National Conference on Street and Highway Safety, the Committee embodied in the report several paragraphs from the statement, "To Park or Not to Park," prepared by the Editor of THE AMERICAN CITY in collaboration with a group of traffic experts, some of whom are on the above committee, and published in this magazine for October, 1926.

9. In congested districts where parking is permitted, spaces should be reserved, at suitable places in each block, for very short time parking to facilitate the delivery of packages and the performing of other short errands which commonly cause double parking.

10. All-night parking should be prohibited.

11. Parking regulations should be rigidly and impartially enforced.

NOTE.—Many of the preceding conclusions have been expressed in general terms only, as the exact limitations which should be placed upon parking are different in different cities and in different parts of the same city; also, they may need to be changed with changing conditions. The real difficulties and the proper detailed regulations to be applied can be determined only by means of a comprehensive traffic survey.

12. If the active and impartial enforcement of such regulations and the alternative of intolerable congestion in the streets are considered by business men to be to the disadvantage of business in certain districts, an attempt should be made to solve the problem by one or more of three methods:

(a) By the provision or improvement of by-pass routes for through traffic, if congestion on the downtown streets is due in a considerable degree to traffic which has no need to be in the district under consideration; such by-pass routes to be designed, wherever economically justifiable, with separated grades to permit uninterrupted flow of traffic;

(b) By the provision of storage garages or other off-the-street parking and loading facilities on private property, by the business interests affected, at their own expense, and with a low rate of charge to their customers;

(c) By the widening, arcading, or double-decking of existing downtown streets—only to such an extent, however, as property owners on these streets are willing to pay, by benefit assessments (payable over a period of years) for so much of the land and construction costs as may be for their benefit; the principle being recognized that if the city as a whole were required to pay the cost of congested-district street widening, arcading or double-decking, the building of by-pass routes would ordinarily be a much wiser expenditure of municipal funds.

All future department stores, theaters, tall office buildings, and other business structures catering to large numbers of customers or tenants should be built, therefore, only with a knowledge by the owner that he must either provide space himself for loading and unloading of merchandise and for storage of his customers', tenants' and employees' cars; or depend on the trade and services of persons who travel by foot or public conveyance; or establish branch shops, banks, neighborhood theaters, etc., outside of the congested centers, in areas properly zoned and so planned that there will be free circulation with ample parking space and a segregation of trucking and delivery by means of alleys or otherwise.

Year-Round Schools Urged for More Thorough Education

THE opening of regular twelve-month sessions in all schools as a desirable forward step in public education in America, was urged at a recent luncheon session of the Woman's City Club of Chicago, by Charles H. Judd, Dean, School of Education, Chicago University. The following abstract of his address is from the December *Bulletin* of the Club:

"The long summer vacation which interrupts instruction in American schools is a relic of a period when children were needed to help in harvesting the crops. Now that the population of this country is so largely urban, the original motive for suspending school has disappeared and the protracted vacation is to be explained as due to habits of thought and to the fact that added expense is involved in conducting schools more days in the year than they are now conducted.

"A number of universities have learned by experience that there is ultimate economy in continuous sessions. The institution's plant is thus used to the maximum, and the work of the faculty can be organized so as to furnish the instructors with a flexible and highly advantageous program. University summer schools are now very general and the attendance on them is large.

"One city in the United States has conducted twelve-month schools in two buildings. That city is Newark, N. J. A dispute arose in regard to the success of the experiment. Many of those who were connected with the experiment are enthusiastic regarding the results secured. Others are opposed to the twelve-month school. The superintendent, who at first favored the experiment, ultimately became one of its most vigorous critics. A committee of experts, brought in to make a survey and report, were favorable to the twelve-month school.

"Perhaps the strongest argument in favor of lengthening the school year is to be found in the history of American education and in the tendencies which this history reveals. In 1840 the average adult in the United States had received only 208 days of schooling. Nothing could be learned in so short a period except the most rudimentary subjects. The demands of modern civilization make it necessary that more than the rudiments be mastered. The result is that the number of days during which the average American attends school has rapidly increased until it is now somewhat more than 1,200.

"There can be no doubt that the demand for more schooling will grow. . . . . There is great need in cities where a congested population has no adequate home accommodations and very few places where children can play, that the public school be kept open as much as possible. Attendance on schools increases in inverse ratio to child employment. In an age where determined effort is being made to save children from industrial exploitation, an extended school life is quite certain to appear. Summer camps are now very generally attended by children whose parents can afford to send them. The vacation school has been provided in many places for children who cannot go to summer camps. The next step which seems inevitable is the opening of regular twelve-month sessions in all schools."

Proportion of Apartment Dwellers Continues to Increase

A RECENT summary of building construction in the United States in 1927, by the Department of Labor, shows that of the families for which space was made available in dwellings built that year in 257 cities of over 25,000 population, 48.3 per cent were provided for in new apartment houses, or dwellings for more than two families, as compared with 45.4 per cent in 1926. As shown by these figures and an earlier table appearing in THE AMERICAN CITY for June, 1927, at page 837, this proportion has increased every year, with one exception, since 1921, during which period reports from these same cities have been obtained; and in 1926 and 1927 the number of families provided for in apartments built each year have exceeded those for one-family dwellings.

The percentage for the latter group in 1927 is given as 38.3, the remaining 13.4 per cent being for two-family dwellings.

As to the volume of building in 1927, compared to other years, the report says: "While the expenditure for new buildings of all kinds in these 257 cities was 17.6 per cent lower than the amount spent during 1925, the peak year of building construction, it was 99.5 per cent more than the 1921 expenditure. The expenditure for residential building in these cities was 103.3 per cent more than in 1921 and for non-residential building was 93.7 per cent greater than 1921. The population of these 257 cities had increased 15 per cent during the same period, according to estimates of the Bureau of the Census."

Reports for 1927 from a total of 302 cities were received, covering building operations in the amount of $3,593,839,405—$1,961,899,529 for new residential buildings, $1,278,541,605 for non-residential, and $353,398,271 for repairs. Accommodations were provided in new buildings in these cities for 418,878 families.

FORWARD STEPS

Reported by

Municipal Officials, Chamber of Commerce Executives, and Others

A Park That Rose Out of the Sea

MIAMI, FLA.—Where now Miami's beautiful 42-acre Bayfront Park blooms in tropical splendor under the warm brilliance of Florida's midwinter sun, only a little over four short years ago there was nothing but water, and some of it backwater at that. Fishing boats tied up along Biscayne Boulevard, and when the tide went out considerable silt and seaweed were left behind.

It was in 1924 that public officials, encouraged by the success of Chicago's lake front fill, began the work of forcing sand from the bottom of the bay with suction pumps and actually turning the water into land. By the fall of 1925, the present park acreage had been created. People looked at it, appalled, for it was only a desert of glaring white sand.

That was merely the beginning, however. It was Warren H. Manning, of Cambridge, Mass., apparently inspired by the prospect of making a desert blossom like a rose—especially when the desert had but newly arisen from the sea—who laid out the design for the park acreage. This design was placed in the hands of Park Superintendent J. Gerry Curtis. Roadways of powdery coral began to appear. Palm trees were planted. An occasional park bench under a palm tree gave promise of future development. But northern visitors still laughed at the idea of anything growing in that powdery, white soil. The palms, however, took root and flourished, and others were planted. Joints of Bermuda grass laid on the surface of the ground took hold and produced more joints till gradually an impenetrable network was formed, in effect a thick green carpet. This carpet conceals pipes that carry water to every tree and shrub.

Rich, black muck was brought down from the Everglades on barges to spread upon flower-beds that were laid out in profusion; and flowers and plants responded with miraculous growth. During the first three years, 500 shade trees, 1,400 palm trees, and 7,400 shrubs were planted. Five hundred varieties of plants were set out and brought to healthy maturity. Two banyan trees, giants of their kind, fascinate visitors, as does a great tropical almond tree. The flower garden in the form of a map of the United States has already been described in THE AMERICAN CITY.

In 1926, Harold Stevenson, assistant to the Park Superintendent, began what promises to become the jewel of the park. Mr. Stevenson, being from Maine, has an eye trained for the kind of landscaping that includes hills and dales, and he decided to create some in the park. He has accordingly made several hills—not very large ones, of course,—but with little winding paths, and vistas. He has added low walls of native coral rock, and has scattered rustic seats here and there. Waterfalls, an exquisite pool with fish in it, bougainvillea, vividly red and purple, climbing over rustic pergolas—these are other elements in the scheme. Violets peep from behind coral rock, and roses bloom here the year round. Every new vista begun has suggested some new idea for development to Mr. Stevenson's prolific brain.

The northern end of the park fronts on the city yacht basin, from which 100 fishing vessels wait to make their daily trips to the Gulf Stream. At the southern end the Biscayne Yacht Club and the band concert stand rear ivory walls against a deep blue sky. The amphitheater where concert audiences are seated is planted in a semi-circle with stately royal palms, a gift to the city by a prominent citizen, Mrs. Carrie Miller. Bayfront Park has fulfilled every dream of its creators, and stands as a miracle to the observers who saw its beginnings being brought from below-sea and see it again today.

ANN STEWART.

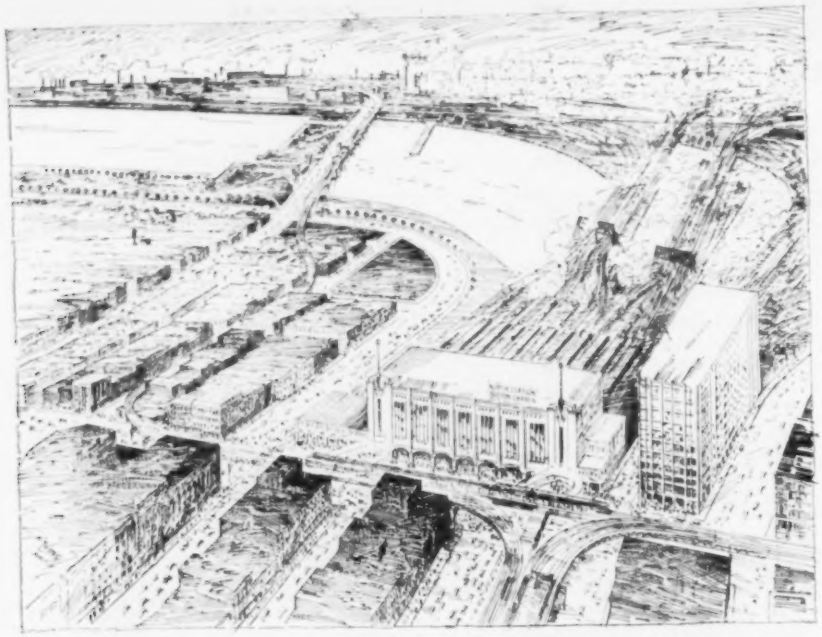
New North Station Is Opened in Boston

BOSTON, MASS.—The new Boston and Maine Railroad Building, embodying a new train terminal and also an auditorium to be known as the Boston Garden, is one of the city's most important recent improvements.

Formally opened on November 14, it will not only serve as a transportation center but also is expected to draw thousands to Boston for conventions in the new auditorium. The municipality made a necessary contribution to the project by widening and reconstructing the adjacent approaches. The northern artery has been extended into the city through the widening of Nashua Street, and the front elevation of the station with its arcade, has been made practicable by the widening of Causeway Street. These surrounding thoroughfares have been made to conform to the architect's plans by this work and are capable of accommodating the increased traffic anticipated. Such street improvements, costing the city approximately $1,000,000, have focused attention on similar work that should be undertaken immediately and is now being considered.

Photographs by courtesy of Hamilton Wright; copyright, Verne Williams

TWO VIEWS IN BAYFRONT PARK, MIAMI, FLA.



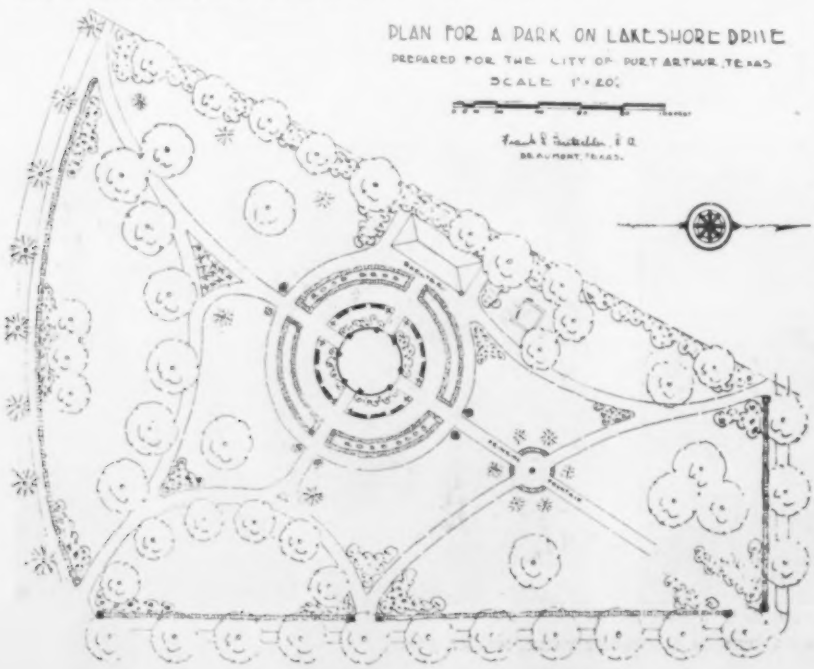
THE NEW NORTH STATION IN BOSTON, WHICH INCLUDES A LARGE AUDITORIUM
The city has expended a million in widening and reconstructing adjacent approaches

Boston has long felt the need for a spacious convention hall, and when the opportunity to realize that wish was presented in conjunction with the new railroad terminal, the city was quick to seize it. The Boston and Maine is spending about $10,000,000 on this improvement, which the city feels will contribute to the development of the surrounding communities as well as that of the municipality itself.

MALCOLM E. NICHOLS,
Mayor.

Spacious Park Development Furthered by Community Effort

PORT ARTHUR, TEXAS.—This city is fortunate in having many sites ideally situated for park and recreation purposes. There are 6.48 square miles within the corporate limits, of which 79.5 acres, or 8.77 square feet for every one of the 45,000 inhabitants, has been set aside for park purposes. In addition, the city owns the Port Arthur Pleasure Pier, which contains approximately 9 acres, and a 210-acre tract located at Port Neches, Texas, but 8 miles away. This Port Neches park is equipped with tables and furnaces for outings and picnics, together with a first-class swimming pool which is used extensively by Port Arthur people and others. Only 20 acres of this property have been developed, but a nine-hole golf course is at present proposed.



In the early life of Port Arthur—and the city is only 30 years old—the Pleasure Pier and one small lake-shore park furnished the only places for play and recreation. A few years later, the Lions Club sponsored and developed a plot of ground by planting trees and shrubs, erecting a bandstand, and placing numerous play devices there, at a total cost of about $10,000. Not many years later the Civic Club, composed of some of the leading ladies of the city, sponsored and developed another plot which is used extensively by the children in that section. They spent about $1,000 on this. Both of these parks bear the names of the sponsoring organizations and stand as monuments to their public-spirited works.

In 1925 the city voted a bond issue for the development of other park property. Bryan Park received the greatest amount of this. The plot of ground is composed of about two acres, and is equipped with a swimming and wading pool, and numerous play devices, and is planted with many trees, shrubs, and flowers.

Lake-shore parks which lie adjacent to the Sabine Neches Canal are composed of approximately fifty acres, and are about two miles in length. These parks have been planted with trees and palms which were donated by the Young Men's Business League and are cared for by park department employees. Two other small plots of ground along this Lake Shore Drive are to be planted with roses. The Port Arthur Rose Club expects to spend several hundred dollars for plants for this purpose, and the Lions Club may also spend several hundred. Plans as drawn for these gardens require the planting of 10,000 roses. The rose gardens will eventually make the city one of the show places of the Gulf Coast territory.

Plans are drawn for Bluebonnet Park, which is in the central part of the city and is composed of twelve acres. This park is only partially developed. When completed, it will be one of the most attractive parks in the country.

The accompanying drawing shows a plan for a lake-shore park to be known as Municipal Park. It is partially developed. All trees as shown were planted by the Camp Fire Girls. Each group of the organization had its quota of trees to plant, and planting was done with appropriate ceremonies. The trees were a gift of the Young Men's Business League.

The civic organizations have played a big part in the development of parks in Port Arthur, and there yet remains work which will cost thousands of dollars and will require years of constant effort to complete. When completed, however, it will assure the Port Arthur people adequate, appropriate, and beautiful recreation areas.

W. O. BOWER,
City Engineer and Park Superintendent.

Recreation Program of Chicago's School-Operated Playgrounds

CHICAGO, ILL.—The Bureau of Recreation in Chicago operates sixty-five year-round playgrounds with two playground instructors, one man and one woman, on each. All are adjacent to schools on school

property and are of the "small type" playground, none smaller than 125 x 200 feet, nor larger than 600 x 300 feet. Although each is well equipped with modern playground apparatus, the facilities are not extensive, which makes the range of program and activities the more noteworthy. The school buildings, under board rules, are unavailable for after-school use. This makes it necessary for us to conduct all indoor activities in our shelter court, which is approximately 18 x 25 feet in size. The apparatus is placed on the ground in such a way as to leave as large an open space in the center as possible for organized activity. Emphasis is placed upon an outdoor program carried on throughout the year in spite of seasonal changes or adverse weather conditions. This, we believe, is fairly unique in a climate such as Chicago's. In the summer, three or four additional grounds are operated for two months only, and additional supervision is furnished during the morning hours on twenty or twenty-five of our year-round grounds, where special attention is given to children under the age of 10. Strangely enough, in many respects our winter program receives more response than work done in the accepted playground season in other cities.

The program as set forth has many objectives. It emphasizes mass participation. It is graded to meet the needs of every age and every type. It brings up personal efficiency and allows for some achievement at all ages by the various apparatus, athletic and skating tests. It builds up bodily efficiency through games and sports, allowing for changing and growing bodily powers. It prepares younger children for higher types of muscular control and coordination through a use of events of a simpler type such as rope jumping, marbles, rope spinning, jackstones, and baseball field events. Finer muscular coordination is built up and an outlet for the creative impulse provided through many craft projects. The child's inherent need for organized competitive events is met through the rodeo, Mardi Gras, model aeroplane meets, and pushmobile races. The program is inclusive enough to insure opportunity for every child to find outlet for his or her interests.

The grounds are open from 8:30 a. m. to 9:00 p. m. six days a week, and are closed on Sunday. On major holidays the grounds are open and under supervision only from 1:00 to 6:00 p. m. On all other days the grounds are opened in the morning by the playground attendants (janitors) who work until 4.30 p. m. The instructors arrive at 2:30 during the school year (1:30 during summer vacation) and work until 9.00 p. m.

The appropriation for 1928 was approximately as follows:

Salaries and wages	$465,000
Maintenance, repairs and replacements	130,000
Supplies	38,000
Permanent improvements	75,000
	$708,000

The average cost of equipping a playground such as ours is approximately $20,-

BOARD OF EDUCATION
BUREAU OF RECREATION

HERMAN J. FISCHER, Director

Supervisors: Nicholas M. Molloy Fred Schwind Walter P. Sonnenleiter Flora J. Wolfson Ellen R. Warner

PROGRAM OF INTER-PLAYGROUND ACTIVITIES

LEAGUES FOR COMPETITION

LEAGUE I	LEAGUE II	LEAGUE III	LEAGUE IV	LEAGUE V	LEAGUE VI	LEAGUE VII	LEAGUE VIII
1. Hayt	1. LeMoyne	1. Waiters	1. Avondale	1. Nash	1. Cameron	1. Mitchell	1. Gladstone
2. Swift	2. Nettlehorst	2. Belding	2. Brentano	2. Delano	2. Mozart	2. Adams	2. Clarke
3. Rolling	3. Hawthorne	3. Henry	3. Goethe	3. Howe	3. Lloyd	3. Washington	3. Morse
4. McPherson	4. Agassiz	4. Audubon	4. Burley	4. Emmet	4. Otis	4. Otis	4. Riverview

LEAGUE IX	LEAGUE X	LEAGUE XI	LEAGUE XII	LEAGUE XIII	LEAGUE XIV	LEAGUE XV	LEAGUE XVI
1. Lawson	1. McCormick	1. Fulton	1. Auburn Park	1. Drake	1. Forestville	1. Avalon Park	1. Kuhn
2. Pickard	2. Burroughs	2. Earle	2. Rastter	2. Douglas	2. Carter	2. O'Keeffe	2. Fox
3. Davis	3. Gary	3. Graham	3. Kershaw	3. Oakland	3. McCosh	3. Perry	3. Scanlan
4. Whittier	4. Corkery	4. Copernicus	4. Ryder	4. Moseley	4. Fiske	4. Gallistel	4. Shoop

GIRLS' AND WOMEN'S DEPARTMENT

INTER-PLAYGROUND ATHLETICS

ICE SKATING MEET
Three Divisions—**Second Week in January**

EVENTS

Juniors, Girls Under 12— 110 Yard Dash 220 Yard Dash
Intermediates, Girls Under 15—
110 Yard Dash 220 Yard Dash 440 Relay (team of 4)
Seniors, Girls 15 and Over—
220 Yard Dash 440 Yard Dash 440 Relay (team of 4)

ICE SKATING EFFICIENCY TEST
Months of January and February
No Age Limits—Carried on Locally on Each Playground

EVENTS

Class B—Bronze Pin—
1. Skate 110 yards in 24 seconds or less
2. Skate 220 yards in 45 seconds or less
3. Skate 440 yards in 90 seconds or less

Class A—Silver Pin—
1. Skate 110 yards in 20 seconds or less
2. Skate 220 yards in 35 seconds or less
3. Skate 440 yards in 75 seconds or less
4. Figure Skating—Do perfectly any two of the following four events:
a. Cut ring forward 3 times in succession
b. Cut ring backward 3 times in succession
c. Scull backward 50 yards
d. Cross roll forward or Double Dutch from flying start 10 times

ROPE JUMPING
District Meets Teams of 2 No Age Limit—**Held in March**

EVENTS

Five Exercises with Single Rope Five Exercises with Double Rope
(See instructors for exercises)

ROLLER SKATING TOURNAMENT
In League and City-Wide Competition—**Held in April**

EVENTS

Girls Under 10 — 50 Yard Dash Coast for Distance; 50 Yard One-Skate Race
Girls Under 12 — 75 Yard Dash—Couple Race; Coast for Distance; Shuttle relay (team of 4)
Girls Under 15 — 100 Yard Dash Coast for Distance; 50 Yard Skate Backward; Shuttle relay (team of 4)
Girls 15 and Over — 100 Yard Dash Coast for Distance; 50 Yard Skate Backward; Shuttle relay (team of 4)

PLAYGROUND EFFICIENCY TESTS
During May, June, July, and August
Gold, silver, and bronze awards given for points obtained according to scale

EVENTS

50 Yard Dash 12 Foot Pole Climb Running Broad Jump
Indoor Ball Distance Throw Running High Jump

PLAYGROUND BALL
Local Leagues—All Divisions—**During April, May, June**

INTER PLAYGROUND BALL
Two Divisions—**Starting in June**
Juniors, Girls Under 15 Seniors, Girls 15 and Over
Places to be announced when schedule is drawn

SWIMMING
Juniors, Girls Under 15—**In August**

EVENTS

20 Yard Free Style 20 Yard Back Stroke 20 Yard Breast Stroke
40 Yard Free Style 40 Yard Breast Stroke
(Swimmers limited to two events)

VOLLEY BALL
Local Leagues in All Divisions—**During August and September**

TRACK AND FIELD
Three Divisions—**Held in September**—Place and date to be announced

EVENTS

Juniors, Girls Under 12—40 Yard Dash Running Broad Jump
Intermediates, Girls Under 15—50 Yd Dash Running Broad Jump
Running High Jump Baseball Throw 440 Yard 4 Man Relay
Seniors, Girls 15 and Over—75 Yard Dash Running High Jump
Running Broad Jump Baseball Throw 440 Yard Relay (4 Man Team)
Gold, silver and bronze medals for first, second and third place.
Shield for winning Playground

VOLLEY BALL TOURNAMENT
Two Divisions—**Beginning in September**
Places to be announced when schedule is drawn
Juniors, Girls Under 15—Tournament in Regular League, District and City-Wide Eliminations
Seniors, Girls 15 and Over—Tournament in straight elimination by District and City-Wide Competition

FIELD BALL TOURNAMENT
Two Divisions—**Beginning in October**
Places to be announced when schedule is drawn
Juniors, Girls Under 15—Straight elimination by League, District, and City-Wide Competition
Seniors, Girls 15 and Over—Straight elimination by District and City-Wide Competition

SPECIAL ACTIVITIES

RUG MAKING
Activity Carried on During January and February
Exhibition Will Be Held at the End of February

SLED MEETS
League Meets in Two Divisions—**Held Third Saturday of January**
Girls Under 10 Years Girls Under 12 Years

EVENTS

Towing (one on sled, one pulling) Swimming Race
Push and Coast Shuttle Relay (team of 7)

TEAM CHECKERS TOURNAMENT
In Two Divisions—**Held in March**
Junior Under 15, 4 girls on team Senior 15 and over, 4 girls on team
Teams will play home and home schedule

O'LEARY TOURNAMENT
In Two Divisions—**Held in April**
Juniors, Girls Under 15 Seniors, Girls 15 and Over
See instructor for exercises

JACKSTONES TOURNAMENT
In Two Divisions—**Held in May**
Juniors, Girls Under 15 Seniors, Girls 15 and Over
See instructor for rules

LOW ORGANIZATION GAMES CONTEST
In Two Divisions—**Held in May**
Juniors, Girls Under 15 Seniors, Girls 15 and Over
Competition in five selected games with teams of 8 girls each
See instructor for games and regulations

FOLK DANCE FESTIVAL
In Two Divisions—**Held in June**
Place to be Announced
Girls Under 12 Years Girls 12 Years and Over
Group Competition—12 Girls in Each Division
Events to be announced

SAND CRAFT COMPETITION
For Children 12 and Under—**Held in July**
(Other ages may exhibit without competition)
Teams of 6 (no more than 3 boys allowed in a team)

EVENTS

Competition in pure modeling Competition in modeling with accessories

MARDI GRAS
Places and method of organization to be announced—**Held in August**

HORSESHOES
Two Divisions—**Held in August**

EVENTS

Juniors, Girls Under 15 Years
Held in League, District, and City-Wide competition in both singles and doubles
Seniors, Girls 15 Years and Over
Held in District and City-Wide competition in both singles and doubles

APPARATUS CONTEST
No age limit—**Held in September, October, and November**
Ten exercises on playground apparatus to be done in perfect form from a selection of 15; 7 are required, 3 optional
See instructor for particulars

UKULELE CONTEST
In Two Divisions—**Held in November**
Juniors, Girls Under 15 Seniors, Girls 15 and Over

EVENTS

Two required songs to be selected for all groups
One optional song, selected by each playground
One original song, selected by each playground

CHECKER TOURNAMENT
In Two Divisions—**Held in December**
Juniors, Girls Under 15 Seniors, Girls 15 and Over
Straight Elimination Tournament in District and City-Wide Competition

HIKES
Optional—Held Throughout Year Especially Emphasized in December
Hare and Hound Chases Treasure Hunts Mystery Hikes
See instructor to participate

TOY MAKING
Optional Craft During Month of December

SPECIAL CELEBRATIONS
ICE CARNIVALS IN JANUARY
VALENTINE PARTIES, FEBRUARY 4th OF JULY CELEBRATION
HALLOWE'EN CELEBRATION CHRISTMAS CELEBRATION
To be organized locally by instructors, emphasizing community participation

RULES FOR ATHLETIC COMPETITION

Playgrounds are divided into Leagues of four and three Leagues are combined into eight Districts for Inter-Playground competition.

Any girl who is a regular attendant at the playgrounds and who has not registered with any organization within one year is eligible to compete. By special arrangement she may compete for school, organization or events that are not governed by our department.

She must compete for the Playground nearest her home. If she moves out of the District, she may continue in competition at the same playground if she desires.

Girls not previously registered who have passed a test entitling to award the same should not compete at that school playground.

There shall be two age classifications.

Juniors—Any Girl Under 15 Years. Seniors—Any Girl 15 Years of Age and Over.

Special classifications are made in each contest as Field Meets (3), Skating, Roller Skating, Folk Dancing, and Track and Field.

Registration for competition in any playground shall remain in effect for a period of one year from date of same and no contestant so registered may compete for any other public park playground locally or post until she has secured a proper release.

AWARDS

Winners of first, second, and third places in Meets listed will receive gold, silver, and bronze medal pins, and winning team will receive a trophy shield.

Winners in Meets, Sports and Special Events Events will receive gold, silver, and bronze medal pins, or ribbons, as specified.

A COMPANION TO THE CHICAGO DISPLAY CARD SHOWN ABOVE GIVES DETAILS OF MEN'S AND BOYS' AFFAIRS

000, distributed as follows:

Field house, including shelter court and sand court	$11,000
Playground equipment	3,000
Grading, fencing and lighting	6,000
	$20,000

All grounds are well lighted at night with the latest type floodlights mounted on steel towers, making it possible to conduct almost any form of playground activity at night.

The average attendance per ground per day is 400.

Probably the outstanding advantage of having playgrounds under School Board control in Chicago, is the fact that the policy of the Board has been to build school buildings on 5-acre tracts of land, thus eliminating the necessity of using playground funds for the purchase of land. The playground revenue is kept separate from other funds under School Board control by reason of a mill tax provided by the State Legislature for playground purposes, which cannot be diverted to other departments. Without such a financial arrangement, a recreation department is likely to suffer through lack of adequate appropriation from school funds, for the reason that the main business of a school board is to operate schools. For this reason also the policies and regulations should be directed by persons trained in recreation work rather than in education. The big point involved here is to avoid making the playground merely an adjunct to the school and to maintain it strictly as a leisure-time recreation institution.

Contacts with the children in the school through the cooperation of the principals and teachers and the Parent-Teacher Associations offer advantages in the way of organization for carrying on the playground program.

HERMAN J. FISCHER,
Director, Bureau of Recreation.

Unique Method Employed in Obtaining Rest Room

AUGUSTA, MAINE.—This city believes that it has acquired a municipal rest room in a manner which is unique in the development of modern communities.

The structure is located on Commercial Street and consists of both a rest room and a gasoline filling station. The present arrangement was evolved when the reconstruction of Commercial Street was undertaken a few years ago during my first administration. Operated under a license from the city by private parties, the filling station at that time earned no revenue for the municipality and served only its intended purpose for motorists.

An agreement was consummated between the proprietors and the city government, which, instead of calling for the removal of the station as originally contemplated under the reconstruction plans, provided that it be rebuilt as a combination rest room and filling depot. The cost of this work was borne practically entirely by the proprietors, in return for which the municipality gave them a lease on the site for twelve years. Building specifications for the combination structure were drawn up by the city, and the work progressed under its supervision.

Today, three-fourths of the building is available as a municipal rest room, and the gasoline service company occupies the remaining one-fourth. By this method, Augusta obtained a rest room costing more than $10,000, at practically no cost to the city. Five years of the twelve for which the service company has been granted a lease, have expired. The city anticipates no difficulty in renting the business portion of the building at the end of the twelve-year period, at an income more than sufficient to maintain the rest room.

Other cities may find it advisable to follow some such scheme as this. Certainly, Augusta might not have obtained such a necessary facility in any other way.

ERNEST L. McLEAN,
Mayor.

"Bigger and Better" County Beautification Contest Planned in Evansville

EVANSVILLE, IND.—According to present indications, a large part of the population of Vanderburgh County will participate in the 1929 county beautification contest, plans for which are already well under way and give promise of even greater accomplishments than those resulting from the first annual competition, held in 1928. Home grounds, vacant lots, and other private property such as church, hospital, and filling-station grounds will again be entered.

The contest was initiated last year by the Civic-Municipal Division of the Evansville Chamber of Commerce and the Women's City and County Club, and met with instant and enthusiastic response from other civic organizations and from the general public. Enrollment applications were filled out by 250 persons, and it was afterwards discovered that many who did not enroll were apparently inspired by the examples of their neighbors who did, and beautified their property in keeping with the spirit of the movement. Nearly all of those enrolled paid the nominal fee of 25 cents which was assessed to take care of printing, stationery, and other expenses, but in the occasional case where the payment would have proved a hardship to the applicant, he was admitted without charge. About 75 persons acted in a volunteer capacity on the various committees handling the contest.

The Beautification Committee endeavored to assist the public in their efforts at improvement by supplying educational material. Purdue University gave splendid cooperation, furnishing two members of their teaching staff, Dr. C. T. Gregory and Prof. Albert A. Hansen, to give a series of illustrated lectures on the growth and habits of plants, methods of controlling plant diseases and insect pests, and other helpful information. The City Plan Commission printed and furnished to the committee for all persons who were asked to enroll (1) a sheet containing ten "Planting Suggestions for the Improvement of Home Grounds" and (2) a leaflet entitled "Better Lawns for Evansville." The latter was a report by Professor Hansen on Evansville's needs for the raising of good lawns, as indicated by a survey of conditions which he made over a year ago. In addition to these ways in which the committee was able to help the public to properly direct their efforts at beautifying, the newspapers all cooperated by printing educational articles.

The county was divided into districts for prizes, using city school districts and townships for this purpose. Entries were scored by the judging committee, both in the spring and before awards were made in the fall. More than forty prizes were awarded, awards being based upon the improvement shown during the contest period.

Last year's prize-winning properties may be expected to show still greater enhancement in attractiveness this coming season, since all of the forty prizes were flowers or plants—peony and iris roots, dahlia, tubers, tulip, crocus and narcissus bulbs, and evergreen trees, all donated by local growers. Two beautiful Chinese junipers with a spread of four feet each were given as a grand prize for all home grounds entries. The awarding of these prizes, the occasion of which was a flower show held under joint auspices of the contest committee and the local garden club, served greatly to increase public interest in, and enthusiasm for, the beautification work. A number of applications were received at that time for the "bigger and better" All Vanderburgh County Beautification Contest, and others have been received since.

R. W. BLANCHARD,
Executive Secretary, City Plan Commission.

GASOLINE SERVICE STATION AND MUNICIPAL REST ROOM, AUGUSTA, MAINE

Municipal Consolidation Planned for More Economical Government

RIDLEY PARK, PA.—Consolidation of the eight boroughs of Collingdale, Sharon Hill, Folcroft, Glenolden, Norwood, Prospect Park, Ridley Park, Eddystone, and Ridley Township, which with their combined population of 40,000 lie along Chester Pike, will be accomplished within the next three years if action started at a recent meeting of the Chester Pike Division of the Burgesses' Association of Delaware County, Pa., has the expected results. This Association was organized two years ago to meet and consider the problems of municipal management common to all of the communities, and the present action has been decided upon after considerable study into ways and means of cutting down local government costs. A petition for consolidation of the boroughs into a city of the third class is planned for introduction at the present session of the State Legislature by the State Burgesses' Association, and there is little doubt in the minds of its sponsors that it will be favorably regarded.

Consolidation of the boroughs into a third-class city was fully considered at the December meeting, and results to be expected from such a move were fully described by some of the speakers. The advantages from the standpoint of economy which we shall realize by becoming a third-class city with a commission form of government may be judged by the fact that we will then have one head instead of nine heads for the fire, police, tax, and public works departments, and one solicitor. On the one item alone of tax collection, we figure that we shall save $35,000. On the assessed valuation of $30,000,000 in the nine boroughs the annual tax roll is $1,500,000, which it now costs $45,000 annually to collect, the collector receiving about 5 per cent in each borough, while one collector at a probable salary of $10,000 or less can do the work under the proposed plan.

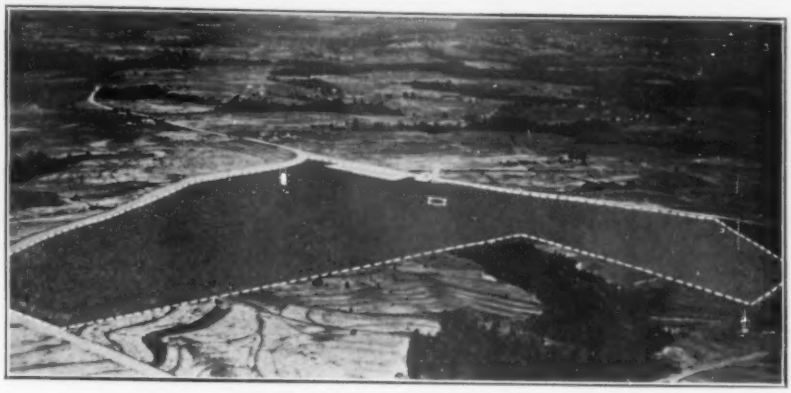
There are now over 1,000 boroughs in Pennsylvania; quite a number have consolidation studies under way, and expect to take action immediately after the 1930 Federal Census; and when we consider the wastefulness of borough government where public funds are concerned, we wonder why more do not get together and form more cities, and make every dollar buy more needed improvements.

H. W. BUSE,
Burgess of Ridley Park, Pa., and President, Burgesses' Association of Delaware County.

Spartanburg Builds Itself an Airport

SPARTANBURG, S. C.—This is one of the group of smaller cities that have been active in establishing proper municipal airport facilities. The total cost of the development to date, including the purchase price and all improvements involved, is only $43,511. Lighting and necessary adjacent road work were undertaken by the county.

The airport proper has an area of about 105 acres in an irregular L shape. The surface is of sandy loam and the natural drainage quite adequate. Two runways, at present theoretical but marked by green lights at night, are 2,700 and 2,550 feet long, respectively, and 600 feet wide, and extend at right angles to each other. The grade of top soil is adapted to the growing of a well-matted turf of grass, and renders concrete runways unnecessary.



THE SPARTANBURG, S. C., AIRPORT
Airplane view indicating the location, boundaries, and improvements

Marking and identification provisions include a standard 100-foot white circle of broken stone, with a 4-foot band. Four small projecting points in white have been added to the circle to indicate the intersection and general direction of the two runways. The airport is but 2¾ miles from the city and in open and sloping terrain with plenty of available land for expansion. Night flying equipment includes standard boundary and flood lights, a 24-inch rotating beacon, and a standard illuminated windcone.

A 60 x 60-foot hangar, erected by Pitcairn Airways, Inc., is located at one corner of the field, and the builders maintain servicing facilities. The name of the city is painted on the hangar and on the roofs of several buildings in Spartanburg and vicinity.

Hard-surfaced roads assure rapid motor travel between the municipality and its airport. The entire area within the boundary lights will be gradually planted to Bermuda grass, making it possible for planes to land without difficulty on practically any portion of the field.

The manner in which the Spartanburg Chamber of Commerce led in the cooperative movement to establish the field originlly was described in THE AMERICAN CITY of October, 1927. The original purchase price paid by the city of Spartanburg for the site was $20,352.81. A grading contract for $4,518.45 was let, and city forces cleared the wooded area, removed several old buildings, and performed other minor tasks such as leveling terraces and smoothing the field with road machines. Exactly $2,639.77 was spent in this manner. The county practically paid for the lighting facilities, costing about $6,000, and invested another $10,000 in road improvements in the vicinity of the airport. Parking space is available and the ground directly in front of the hangar will probably be laid with concrete in the near future.

Spartanburg has a 3-mill levy for park purposes, and the park system has been extended so as to include the airport site. As far as the municipality was concerned the airport was paid for out of these park funds.

D. G. ADAMS,
City Engineer.

Vancouver Fire Department Obtains First Marine Unit

VANCOUVER, B. C.—A 60-foot fire-boat, the first marine unit of the Vancouver Fire Department, is now in operation and prepared to fight any fires in the False Creek industrial area.

The city of Vancouver advanced the funds for the acquisition of the boat and has guaranteed its upkeep. Actually, it is being paid for by the property owners in the False Creek section out of the savings accruing from the reduction in the fire insurance premium which it has made possible.

Of steel construction throughout and with a speed of 11 knots, this fire-boat cost, complete, $52,440. It has combined hydraulic and screw propulsion and a pumping capacity of about 6,000 gallons per minute. Construction was done by the Burrard Drydock Co., at North Vancouver from designs by Arthur Bennett. Its total horsepower is about 750, consisting of a 6-cylinder 150-b.h.p. Sterling gasoline engine with 3 to 1 reduction gear for the propelling unit, and two 8-cylinder Sterling gasoline engines rated 300 h.p. each, driving the pumping units.

A boat-house has been built for this new marine unit which also accommodates the crew. In connection with adding it to the department, the Dominion Government appropriated $72,000 for special dredging to assure a channel 6 feet deep at low water, from the main channel to each industrial site. Previously, about 59 per cent of this property was inaccessible at low water.

The "J. H. Carlisle" has the following principal measurements: 60 feet length over-all, 15-foot 9-inch beam, 3-foot draft forward, and about 3 feet 8 inches to the bottom of the shoe supporting the rudder, which is below the level of the keel. The machinery space is amidships under a raised deck, 28 feet in length. The fore peak compartment, separated from the engine room by a watertight bulkhead, has a storeroom and chain locker; and the

after watertight compartment contains the main fuel tanks. On the forward part of the raised deck is the pilot-house, having water screen protection, and aft of the pilot-house is a water-tower, 24 feet high, with a 6-inch monitor having a capacity of 3,000 g.p.m. A 4-inch monitor, with a capacity of 1,500 g.p.m., is mounted on the flush deck forward, and a third monitor of 3½-inch proportion, with a 1,100-g.p.m. capacity, is on the after part of the raised deck. There are also six hose connections forward and six aft.

In pumping tests with starboard pump working at 120 pounds pressure, a discharge of 2,863 g.p.m. was obtained in an hour's trial, while the port pump gave 2,793 g.p.m., at 1,380 and 1,360 r.p.m. respectively; a total of 5,656 g.p.m. for both pumps. On a 15-minute maximum pressure test pumping in series, with both engines turning at 1,350 r.p.m., the starboard pump working at a pressure of 120 pounds to the square inch and the port pump at 250 pounds per square inch, a discharge of 2,930 g.p.m. was obtained.

It was estimated that under single-unit operation, a 2½-inch stream of water was thrown 250 feet in the air, with a nozzle velocity of approximately 125 feet per second. When the same nozzle and both pumps were working in series, the stream was thrown 300 feet vertically and nearly 500 feet horizontally, with a velocity of about 172 feet per second. With a fuel capacity of 700 gallons, the "J. H. Carlisle" can work at full power for more than 15 hours without refilling, her gasoline consumption being about 40 gallons per hour. On maneuvring tests, she turned readily in an 80-foot circle at full speed ahead and came to a full stop in 1½ lengths, from full speed ahead.

This boat* is being operated by two crews of six men each of the Vancouver Fire Department. Captain R. F. Ross and Captain J. A. McInnes are the pilots, and a fire captain is in charge of the crews, which stand a 10-hour day watch and a 14-hour night watch.

J. H. CARLISLE,
Fire Chief, Vancouver Fire Department.

* Shown in action on the front cover of this issue of THE AMERICAN CITY.

Serious Street Traffic Problem Arouses New York's Civic Organizations

NEW YORK, N. Y.—New York City has become aroused to a high pitch over its street traffic problem. All of the metropolitan daily newspapers have been carrying stories in almost every issue for the past three or four weeks setting forth the views of city officials, civic organization committees and private individuals. As a result, every one is reading and talking about solving traffic difficulties.

The new Police Commissioner, Grover A. Whalen, has completed plans for drastic measures in the theater district and has mobilized a large corps of police officers to carry out the new orders, which include no parking and no right- or left-hand turns within the restricted area that had been designated.

"Jay walking must stop," says the new Commissioner, who with the Chief Magistrate, William McAdoo, is working out new legislation to restrain pedestrians effectively from dodging in and out between automobiles and slowing up traffic on the streets.

"New structures are vitally needed," say one group of civic organizations. They maintain that a tri-borough bridge, a 38th Street tunnel and a Brooklyn highway will be necessary to bring relief.

Mayor James J. Walker has retained the services of a firm of engineers to advise him concerning the cost of these new structures, and legislation is being prepared for passage at Albany to permit the city to finance such enterprises through the sale of corporate stock.

Julius Miller, President of the Borough of Manhattan, is preparing detailed plans for the new Elevated West Side Highway. Private companies appear ready for incorporation, and ask for franchises to build vehicular subways under the streets of the city.

Much of this activity is directly the result of a meeting on December 12 of the members of one of the civic organizations, the New York Board of Trade, at which time Miller McClintock, of the Albert Russel Erskine Bureau of Harvard University, and Percy S. Straus, of R. H. Macy & Co., were the speakers. Dr. McClintock pointed out that industry and business created the traffic congestion, and must assist in its solution. Mr. Straus expressed the opinion that the urgent need of the time was leadership. Near the close of the meeting a resolution was passed which authorized the President of the Board, W. J. L. Banham, to invite the presidents of such other civic and commercial organization as he thought advisable, to join him in the appointment of a New York Citizens' Street Traffic Committee.

Five days later, sixty-seven presidents of organizations met with Mr. Banham and took the necessary steps to appoint the preliminary New York Citizens' Street Traffic Committee.

On January 3, this preliminary committee met in the headquarters of the Merchants' Association and formulated plans to enlarge itself by inviting into membership on the committee representative leaders of the many lines of business that were contributing to the city's traffic problem.

On January 15, over three hundred members of the Committee met in the headquarters of the Chamber of Commerce of the State of New York, and resolved to incorporate and formed a permanent organization—elected Mr. Banham president of the organization, and a board of twenty-one directors.

In submitting a report of the Plan and Scope Committee, Dr. John A. Harriss, Chairman, and President of the Broadway Association, pointed out that the traffic congestion was not a temporary condition that would correct itself, but a situation that will become more aggravated with the growth and development of new sections, and the work, therefore, should be continuous.

In accepting the presidency of the new Association, Mr. Banham promised the citizens of New York action and not words, and gave the new committee a slogan, as its purpose. "To solve New York's traffic congestion problem through the intelligent application of cooperation and common sense."

M. D. GRIFFITH,
General Manager, New York Board of Trade.

Baltimore Yesterday, Today, and Tomorrow, Is Shown in Civic Film

BALTIMORE, MD.—The Motion Picture Committee of the Women's Civic League of Baltimore, under the able chairmanship of Mrs. Leonard Hecht, has given to the citizens of Baltimore a motion picture in two reels which has for its object the quickening of interest in civic affairs on the part of the citizen.

The first reel presents a number of historic scenes which date from 1754 and are dear to the heart of every Baltimorean. The second reel is entirely municipal and is built up on contrasts. Antiquated methods employed by the city in the early days for the solution of civic problems are contrasted with the present carefully planned and efficient methods of today, and always the cooperation of the citizen is stressed. An interesting caption, "The Clock Ticks Fast and Youth Begins to Question," introduces members of the Junior Civic League, well trained in civics, who register extreme dissatisfaction with conditions, and by their clever acting keep constantly before the audience the necessity for training the child of today in civics, in order to provide for the community the intelligent citizen of tomorrow.

Keeping pace with the municipal trials of every large city we have in turn presented to us pictures which are built up around such problems as zoning, transportation, health and sanitation, legislation, recreation, traffic, art, home gardening, and, last but by no means least, "Smoke Abatement." This picture with its pertinent captions is given much space, as smoke abatement is considered the outstanding work for 1929. How one does wish that it were possible for every civic organization in America to present by the use of the motion picture the crying necessity for an enforced smoke abatement ordinance in every city!

The popularity of the picture is indicated by the fact that after the pre-view showing in June, it was exhibited in 47 motion picture theaters throughout the city, and with the approval of the Board of Education is at present being shown in the elementary and high schools of the city, and in all clubs and organizations which apply for the use of the film. The showing of the picture in the motion picture theaters has been a matter of much congratulation to the Committee, who realize that a seat paid-for represents attention secured, and thus "Old and New Baltimore" not only points the way to a better understanding of municipal problems, but urges the citizen to assist in their solution.

EDITH NELSON PILLING,
Field Secretary, Women's Civic League of Baltimore.

Little Towns and Big Cities Accomplish Wonders With Brooms and Paint Brushes, Flower Seeds, Shrubs and Trees

Some Clean-up Movements, Worth-While in Themselves, Which Have Led to Permanent Civic Improvements and Housing Betterments

THE most Utopian prophet of a civic millennium, sitting down to draw up a plan for the complete transformation of his own community, and incorporating into that plan every conceivable physical improvement scheme, could hardly produce a working program of first steps more extravagant or idealistic than some of the actual accomplishments reported from communities of all sizes during the past year.

People who have never performed a civic service before have entered energetically into clean-up and beautify campaigns that have changed the whole appearance of their towns and cities. They have given their money and their time, and, more, have actually gone out armed with brooms and paint brushes, flower seeds and planting equipment, and have performed miracles. And this is all the more significant because the history of clean-ups is that they are as habit-forming as tossing refuse into the alley and that they readily tend to become annually recurrent events.

River Bank Improved; Park Beautified; Swimming Pool Restored

Greenwood, Miss., to take an instance of an easy-going city of about 7,000, suddenly became imbued with the idea of "fixing up." The Woman's Club took the initiative, and every other organization joined in. Mayor John Ashcraft was made chairman of the campaign, and one of his first official acts was the issuance of a clean-up proclamation. The City Park, originally an attractive spot, had some time ago become utterly desolated. Weeds grew six feet tall all over it, and thirteen cows were pastured there. A beautiful concrete wading pool, which the Kiwanis Club had built and donated to the city, had fallen into ruins and its plumbing was out of order. This condition was referred to the City Council early in the campaign. The park is a park again, and in excellent condition. The pool has been restored. And the cows now live elsewhere.

The Garden Club planted 5,000 plants in a strip a block long and 5 feet wide along the riverfront, and this was a mass of exquisite bloom this summer. The Light and Power Company landscaped its grounds, and the Y. & M.V. R.R. planted its right-of-way through the town and improved the station grounds. The Standard Oil Company and two factories have beautified their grounds also, and the public gas stations have been made attractive. One of the most dramatic achievements of the campaign was the conversion of an old dumping-ground into what is now one of the most attractive spots along the river. Flowers, grass, and shrubs now grow where formerly rank weeds and old tin cans abounded and where there were (by actual count) 74 old junked automobiles.

A few suggestive items might be added from the lengthy record of public improvements effected, or private improvements of public import carried through under mass impetus:

Cleaned
1,034 alley lots
1,398 back yards
1,368 front yards
1,302 vacant lots
12 street name signs

Planted
734 flower boxes
706 flower gardens
525 vegetable gardens
80 grass plots
1,152 shrubs
421 trees

Miscellaneous
1,126 rubbish piles burned
295 insect breeding places destroyed
714 rats killed
62 fences repaired
53 fences painted
840 ash cans emptied
644 refuse cans disinfected
211 new refuse cans bought
12 old signs torn down
272 trees trimmed
106 dead trees and stumps removed

Better Sanitation; Cleaner Railroad Rights-of-Way

In Great Falls, Mont., a number of bad sanitary conditions of long standing were corrected during the summer clean-up. These included the removal of all dog kennels located within the city limits; sanitary sewer connections for 256 of the 366 existing pit privies; the use of 3,000 gallons of oil on the riverfront lakes, and drainage channels in parks and other places within three miles of the city limits, in an effort to exterminate mosquitoes. Also, sanitary latrine toilets were placed in the free tourist camp outside the city, and a weekly inspection system was established for both the public and the commercial tourist camp. A dairy located within the city limits was discontinued and the property has been turned into vegetable and flower gardens. Two other dairies just within the city limits have removed their cow lots outside, thus mitigating an odor nuisance. Squatters along the Missouri River have been removed, and the grounds cleaned up and fenced against further encroachment. Eight railroad lines running into the city cooperated in the clean-up by cleaning rubbish and other refuse from their rights-of-way within the city. Numerous improvements have been effected in the garbage and refuse disposal system, and sanitary supervision and protection of public beaches have been ensured, including the keeping of the two rivers free above the city from dead bodies of animals. Two truckloads of unsightly advertising signs were removed from roadsides and river approaches.

But Great Falls, like Greenwood, and many other communities, believes that "the city that is merely scrubbed up and shiny expresses only drab mediocrity," hence its beautification and permanent improvement campaign was as extensive as its clean-up.

A Community Memorial; Municipal Golf; and a Million-Dollar School

The home and studio of the late Charles M. Russell have been purchased and paid for as a permanent public memorial to a beloved artist. A statue of Paris Gibson, founder of the city, has been placed in a public circle, and its surroundings landscaped by the park department employees. Two new golf courses have been established, both on grounds hitherto waste land cluttered up with dump-heaps. These new links are in two different parts of the city, and are already popular with the young people and with tourists. Three new playgrounds were established, and summer supervisors provided by local industries. A public playgrounds organization was completed, and officers elected. Boat-houses and water craft at Broadwater Bay were improved, and the marshy areas there partly leveled up. The Park Board did extensive tree planting. Also, approximately 290 trees were planted along the main highway at the east approach to the city, and the lighting system at the gateway of the city via Great Northern Depot and Margaret and Whittier Parks, was extensively improved. Outstanding among other undertakings reported is a million-dollar schoolhouse for which bond issues were voted and on which work was actually begun during the summer and autumn. It will occupy a spacious site obtained for the purpose. Another item was the

CHILDREN QUICKLY CAUGHT THE CLEAN-UP AND BEAUTIFY SPIRIT

Above are shown: Civic Virtue Enthroned in Cleveland; or, Cleaned Up But Not Yet Beautified. The two middle pictures represent scenes from Tin Can Matinees in two cities. The first is a section of the waiting line at one of the movie houses at Cuyahoga Falls, Ohio, each youngster armed with his entrance fee of six tin cans; the second is the "box office" for one of the Tin Can Matinees at Huntington, W. Va. Below is a group of first graders who were among the 200,000 children enrolled in the Greater Pittsburgh clean-up. Their particular contribution to the campaign, which was the national prize-winner in the cosmopolitan class, was the posters they are exhibiting

commencement of activities for a statewide enabling act for city planning and zoning. A municipal airport was established. And one of the greatest moves for cleaner and better living conditions was accomplished with the turning-on of natural gas for city-wide use.

Housing Betterments; Dilapidated Buildings Demolished

Ashland, Ky., belongs to the same population group as Great Falls, and has also achieved great improvements in public sanitation during its recently closed "A. B. C." campaign, the slogan of which was "Ashland, Beautiful and Clean," and which represented "the greatest piece of civic work ever put over in the city." The Citizenship Department of the Woman's Club, with the cooperation of the Mayor, and other municipal departments, civic bodies, schools, and business and social organizations, did the work. The nearby city of Catlettsburg joined in. During the campaign 24 public nuisances were abated. Thereafter, a separate Rose Week was celebrated, with thousands of flowers and shrubs planted in public and private grounds. A tree expert was brought in in a special drive for better and more permanent trees. A Better Homes campaign was also linked onto the whole.

In fact, housing improvement everywhere has been made a tremendous (and largely unplanned) part of clean-ups in literally hundreds of communities during the past few years, and especially in 1928. It was true in Greenwood, and in Allendale, S. C., where splendid cooperation was enlisted among colored citizens and colored school children in clearing up their own sections. Many dilapidated shacks were removed in Huntington, W. Va., also, and in Oxford, Miss.

Oxford has a population of well under 3,000. Many dilapidated buildings were removed during its campaign in the interest of fire prevention and general improvement of the city's appearance to be replaced by permanent improvements. When the campaign began, every building in the town center had a badly weather-beaten wooden awning. Seven of the stores were entirely renovated, fifteen painted, and twenty-five removed. A new theater, ten stores, and four garages have been built, making a total of fifteen new business buildings. And twenty-five new homes were put under way during the campaign.

Paving, Street Cleaning and Fire Protection

A $75,000 school building is another item of the permanent improvement achievements. A $300,000 paving program had been launched just prior to the drive, and served to give impulse

to much more work than would otherwise have been done. A new flusher was bought by the Street Cleaning Committee at a cost of $5,500, and a new piece of motorized fire apparatus by the Fire Prevention Committee at a cost of $12,800. These committees, and a number of others representing municipal, civic, social and business interests, are permanent, and work under the Civic League which was organized with the organization of the clean-up. The Oxford campaign was initiated publicly by a pageant-parade led by the town band and public officials, and made up of school children in groups representing appropriate subjects such as mosquitoes and sprays, flies and swatters. It was followed by a Tin Can Campaign in which 150,000 cans were collected and used to fill in a gulch behind the schoolhouse.

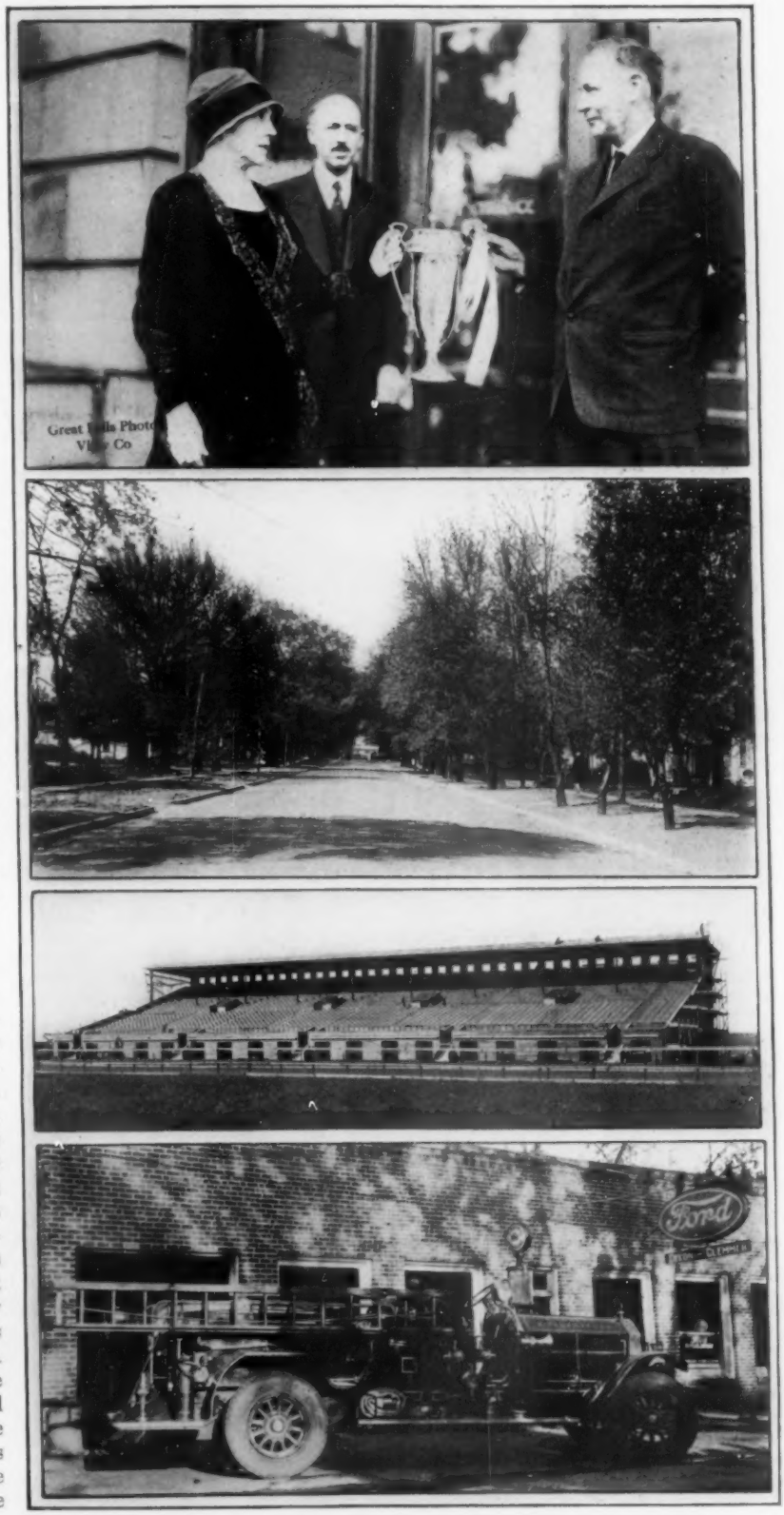
Even the smallest towns are imbued with the cleaning fever. Isanti, Minn., with a population of 450, conducted a three-months program, as a result of which it is "a town 100 per cent clean, and resolved to keep that way." A park was adopted by the Girl Scouts as their permanent beautification project, and even the vacant lots there are now planted with flowers. Mt. Mineral King, an old mining town in the High Sierras section of California, is even smaller. It has 300 inhabitants, 60 houses, and 2 stores. It recently announced that every building in the town, including the dog kennels, had been freshly painted, and a Great White Way created!

A Tin Can Parade and Matinee

Cuyahoga Falls, Ohio, would not, perhaps, show so much per capita effort expended. But the accomplishment of its campaign, with Russell Frey as Executive Secretary, was simply tremendous. A big public feature of the event was a Tin Can Parade and Matinee, at the two leading theaters. Six tin cans were the price of admission, with a 10-ton truck outside each theater to act as ticketbox. An attendance of 1,100 children represented a third of the city's child population—every child had at least his full quota of "fare." Every church in the city preached cleanliness on the opening day of the campaign. A thorough city-wide survey was made both before and after the campaign, and various bodies were made responsible for the districts into which the city was divided. The Boy Scouts carried the campaign into the neighboring residence district of Silver Lake.

A Typical Set-Up

In Binghamton, N. Y., where the campaign was carried on under the auspices of the Civic Club, the set-up was typical. It consisted of:



THE CLEAN-UP IDEA EXPRESSED IN TROPHY AND ACHIEVEMENT

Mrs. Dolly Dean Burgess, Chairman, Division of Community Service, General Federation of Women's Clubs, presenting the Montana State Trophy Cup to Hon. Harry B. Mitchell, Mayor of Great Falls. In the background is J. H. Stevenson, Chairman of the Great Falls Chamber of Commerce Beautification Committee. The three pictures below are typical examples of the hundreds of permanent improvements effected during, or as a result of, clean-up campaigns. The first is a stretch of one of the residence streets of Oxford, Miss., figuring in the $300,000 paving program. Below are the new bandstand at the fair grounds at Great Falls, and the motorized fire apparatus which was bought by the permanent Fire Prevention Committee of Oxford, which is shown in front of the renovated Fire Department headquarters

An Executive Council of twelve members, which held luncheon meetings weekly for six weeks

A Central Committee, which met weekly for six weeks

Campaign Committees:

- Publicity Committee, of nine members
- Sub-committees on Movies, Speakers, and Churches
- Prize Committee of eight members
- Reports and Headquarters Committee of six men
- Finance Committee
- City Subdivision Committee of four, each member of which is chairman of a district committee
- Sales Promotion Committee

The Binghamton achievements include the following:

Cleaned	608 insect breeding places destroyed
238 alley lots	773 rats killed
1,933 back yards	485 fences repaired
1,820 front yards	257 fences painted
288 vacant lots	$535 worth of junk and paper sold
255 street name signs	1,103 ash cans emptied
Planting	1,866 refuse cans disinfected
922 flower boxes	632 new cans provided
1,434 flower gardens	654 old signs removed
1,275 vegetable gardens	1,157 shrubs and trees trimmed
858 grass plots	744 dead trees removed
545 shrubs	
483 trees	
Miscellaneous	
1,580 rubbish piles burned	

Sources of Aid and Inspiration

These are but inadequate notes from reports, each of which is an epoch-making document in the realm of community effort, and these reports are but a few from among thousands of communities for, suddenly, "clean up and beautify" has become a national sentiment. Greater significance is given to the fact because the impulse seems to have been largely indigenous or to have resulted from the influence of a good example. Many cities would be able to report as did the executive at Binghamton, "Nearby communities are copying us." Also, friendly rivalry among neighboring cities has become strong. But no national organization has actively sponsored clean-up campaigns. The National Clean-Up and Paint-Up Bureau, 310 East 45th Street, New York City, is a center of information and service to communities launching the movement, but does not initiate local movements. It provides upon request, advertising material, report blanks, etc., at cost and below cost, and it attempts to keep a record of city clean-up achievements. Ralph W. Emerson, Executive Secretary, is authority for the statement that well over 8,000 towns and cities of all sizes and classes have participated in campaigns during the past few years, and that many of them now conduct annual campaigns.

Mr. Emerson says: "We visualize an America spotlessly clean and replete with orderly beauty, as a practical realizable ideal." This ideal was furthered during 1928 by a nation-wide "Cleanest Town" contest held under joint auspices of the Bureau and the General Federation of Women's Clubs. "Cleanest Town" trophy cups were awarded to Hallock, Minn.; Heyworth, Ill.; Binghamton, N. Y.; Mineral King, Calif.; Cuyahoga Falls, Ohio; Oxford, Miss.; Allendale, S. C.; Richmond, Va.; Hamtramck, Mich.; Huntington, W. Va.; Ashland, Ky.; Eau Claire, Wis.; Clovis, N. Mex.; Nashville, Tenn., and Yoder, Wyo. Billings, Mont.; St. Cloud, Minn.; Isanti, Minn.; Greenwood, Miss.; Manchester, Tenn., and Nelsonville, Ohio, were given special recognition awards in their respective population classes, because of the excellence of their reports.

In the metropolitan class special recognition awards based upon excellence of specific reports of progress and achievement according to population were made to the Clean-up and Paint-up Campaign organizations of Chicago, Pittsburgh, Minneapolis, and Cleveland. Columbus, Ohio, also received an award in the large-city class.

Chicago Has New, Well-Lighted, High-Speed Traffic Outlet

IN keeping pace with the new and modern $30,000,000 North Side sewage treatment works, the Sanitary District of Chicago has opened a high-speed outlet from the north side of the city to the northern suburbs. This new boulevard has been named McCormick Road in honor of R. R. McCormick, a former president of the Sanitary District of Chicago.

McCormick Road is one of the most up-to-date streets in the country. The installation is notable in that it is the first section of a high-speed roadway paralleling the Sanitary Canal. The road is 4½ miles long—the center 20 feet of its width being asphalt on an 8-inch concrete base. The edges of the road are of extra-heavy solid concrete built to withstand truck traffic.

Besides featuring such rugged construction, McCormick Road boasts of being as well illuminated at night as it is by day. Six hundred lighting units are employed, making an illumination source every hundred feet on both sides of the road. The installation consists of 600 Westinghouse Black and White Hollowspun granite standards, 15 feet high, with Folium casting left in natural aluminum finish, on which are mounted Washington rectilinear tops. This is the same style of lighting unit that is installed in our national capital. Each post is equipped with a 10,000-lumen, 20-ampere lamp which is supplied with current through a Kuhlman safety coil installed in a vault at the base of the post.

The lighting system is controlled by fifteen 34-kw. Westinghouse station-type automatic regulators controlled by electrically operated oil switches. The system is so wired that every third pole is on a different circuit. This allows the system to be operated as three separate units—assuring illumination even though unavoidable circumstances should cause part of the system to fail.

In addition to the excellent construction and adequate illumination, McCormick Road boasts of many safety features. All grade crossings for railroads have been eliminated by means of subways, which are lighted by an indirect system that conceals the light but illuminates all necessary points. Traffic on McCormick Road is adequately protected by signal lights.

J. T. MILLER.

Manager, Department of Permanent Plants, Sanitary District of Chicago.

THE NEW LIGHTING OF McCORMICK ROAD, CHICAGO

Road Construction in Cemeteries

By BEN H. PETTY

ASSISTANT PROFESSOR OF HIGHWAY ENGINEERING, PURDUE UNIVERSITY

AN adequate foundation is a prerequisite of any good road. With gravel and stone types, this may be secured through the use of a telford base or a suitable thickness of the gravel or stone itself. For black-top types, the foundation may be either telford, gravel, crushed stone, black base or concrete. A concrete pavement provides its own foundation, since it is a rigid type, frequently designed to carry the loads, disregarding subgrade support. With the block types such as brick, wood, stone, and asphalt block, the base is usually a concrete slab. In any case, it should be adequate to carry the expected loads. This is governed usually by the type of subgrade soil and drainage conditions.

Proper drainage assures the development of the full life of the road material with a minimum required thickness. On rural roads, surface drainage is usually cared for by side ditches, but the customary deep side ditches are out of the question on cemetery drives. Where curbs and gutters are used, the drainage is simplified. The grade should be kept under 8 per cent if possible, by following contours on hilly locations. This should be a maximum in order to prevent excessive erosion on stone and gravel types and dangerous slipperiness on paved types.

The location of cemetery roads is usually a function of the landscape designer, to facilitate lot layouts and advantageous use of the irregular topography. Width of roadway naturally varies with the size of the cemetery and the resulting traffic to be expected. The commonly accepted traffic lane width is 8 feet for slow traffic.

Importance of Type Selection

The type of road should conform to, or blend with, the surroundings. When one thinks of the meaning of the word "cemetery," such conceptions as beauty, peace, quietness, harmony and dignity come into the mind, and one visions a place of well-kept rolling terrain with trees, shrubs, flowers, artistic stone markers and curving roads surfaced with a material that does not clash with the surroundings.

Secondary Road Types

In some of our smaller cemeteries where first cost is the controlling factor, either gravel or crushed limestone is used for the driveway. These materials serve quite satisfactorily as secondary types. They should have a compacted thickness of 6 to 10 inches, depending on subgrade, drainage and traffic conditions. Crushed stone roads do not break through as easily during late winter thaws, since the interlocking of the angular pieces of stone presents a greater load-carrying capacity than the rounded pebbles in a gravel road. The gravel road is somewhat easier to maintain, as the pebbles are more readily handled by road drags or planers. The best maintenance tool for gravel or stone roads is a maintainer of the long base planer type which actually planes the surface by cutting off the high spots and filling the low places.

The following objections may be raised to secondary type roads in cemeteries: they tend to soften on the surface during periods of excess moisture; tires of passing automobiles frequently throw pebbles or stones off the road onto the lawn, where they damage the lawnmowers; frequent surface maintenance is necessary, varying with the traffic; if traffic is very light, there is a tendency of the grass and weeds to start growing on the road; they are inclined to be dusty unless treated with calcium chloride or a suitable oil.

Intermediate Types

The intermediate road types are surface-treated, bituminous mulch, retread, and penetration macadam. The cost per square yard increases about in the order mentioned.

Surface treatments are applied principally to crushed stone roads or to a black-top type needing surface renewal.

A waterbound macadam road which has been subjected to traffic long enough to remove the fine surface material, exposing the larger stone to a depth of ¼- to ½-inch, presents an ideal condition for surface treatment after the dust is swept off. One or two light applications totaling about ½-gallon per square yard of tar or cut-back asphalt, followed by a thin coating of clean stone chips or pea gravel complete the operation.

Surface treatments naturally conform to the contour of the original road, and if this happens to be rough and wavy, the surface treatment will present the same appearance. To overcome this defect and secure a smooth riding surface, the use of a heavy, long base road planer is recommended after the chips have been applied and before the bituminous material has begun to set.

Bituminous mulch consists of scraping the upper inch or more of loose metal off the road with a road grader, then applying about one-third gallon per square yard of bituminous material to the exposed surface. The loose material is then spread back over the treated surface and subjected to similar treatment of bituminous material. The loose mulch should be bladed back and forth until thoroughly mixed and compacted under traffic.

The retread method is in reality a modified penetration macadam at less cost. It should be attempted only where at least 6 inches of good compacted metal is available as a base. The metal should be shaped to the proper crown with a road grader or drag; then from 1 to 3 inches of clean crushed stone slag or gravel, spread over the surface, using stone from ¾-inch to 2½ inches and from ¾ to 1¼ gallons of bituminous material in two or three applications. A covering of stone chips seals the voids. The stone and bituminous material are sometimes mixed on the road with a grader blade before rolling.

Penetration macadam surface consists of a 3-inch compacted layer of coarse stone, penetrated with bituminous material at the rate of about 2 gallons per square yard. If this is new construction, the top is usually placed on a 6-inch waterbound macadam base. Old gravel or stone roads may be utilized as base courses, providing suitable thickness is

Road Construction Fundamentals

There are certain fundamental principles applicable to all road construction, regardless of location. There are other factors which should be carefully weighed in selecting road types. The importance of each characteristic varies with the particular location of the road. Foundation, drainage, grade, and alignment must receive careful consideration in every case, while such items as cost, durability, noise, slipperiness, maintenance cost, dust, ease of repair, and appearance, each take on a different weight in influencing the proper construction of road types, according to the particular location or use of the proposed road.

present. It is highly important that large stone be used, from 2½ to 3½ inches, to permit rolling before the bituminous material is applied. This locks the angular pieces, increasing the strength of the road.

High-Type Pavements

Rock asphalt, portland cement concrete, bituminous concrete, sheet asphalt, vitrified brick, asphalt block, wood block and stone block are classed as high-type pavements for cemetery work. These are listed in the order of increasing cost per square yard, although this order will vary somewhat in different localities, on account of proximity to source of material.

Natural rock asphalt may be used satisfactorily in resurfacing old rough pavements or in new construction. As the principal sources are Kentucky, Alabama, Texas and Oklahoma, freight becomes a controlling factor in its selection because of cost. In new construction 1 to 2 inches of this material compacted may be used on a concrete base of 6 inches thickness with a rough surface for anchorage, or on 8 or 10 inches of waterbound macadam with surface stone exposed suitable for anchorage.

The cost of new construction of this kind will probably equal or exceed the cost of concrete. If, however, an old stone base of suitable thickness can be salvaged, the cost is materially reduced. Use of a heavy planer type road maintainer on the rock asphalt surface after slight compaction will produce a smooth, even riding surface. Sandstone rock asphalt is usually laid without heating, while the limestone type is usually heated.

Portland cement concrete provides a rigid, dustless pavement, the maintenance of which is practically limited to the filling of surface cracks with bituminous material once or twice a year. It should not be less than 6 inches in thickness and preferably strengthened with mesh reinforcing. Some cemetery roads have been paved with a 1:2:4 mix, although a richer mix, say 1:2:3, would be more satisfactory. A low, sloping integral curb enhances the utility of this type of pavement.

Bituminous concrete consists of a mixture of bituminous material with more or less carefully graded aggregate from about 1 inch down, to secure as great density as possible. There are several different types under this heading, including such patented types as Warrenite-bitulithic, Amiesite and emulsified asphalt. The latter two can be mixed either on the job or at a distant point and shipped in open cars to the point of usage, where they are laid cold. This material is usually laid on at least 6 inches of concrete and thoroughly rolled to a compacted depth of about 2 inches.

Sheet asphalt is extensively used on city streets, park drives and boulevards. It consists of a 3-inch layer of pre-mixed aggregate and asphalt, equally divided between binder and wearing courses. The binder course is a bituminous concrete mixture. The wearing course contains no coarse aggregate, being composed of sand and stone dust. This type is laid on a concrete base at least 6 inches thick. In some cases the binder course is eliminated and the wearing course laid directly on a roughened concrete base. Properly constructed, practically no surface maintenance should be necessary for several years.

Vitrified brick may be used as on city pavements and rural roads. It should be laid on a concrete base with a 1-inch sand cushion and joints filled with asphalt. Investigations of the U. S. Bureau of Public Roads have shown that paving brick can safely be reduced from the customary 3½ or 4-inch thickness to 2½ inches; on light traffic pavements a 2-inch brick will probably suffice. Practically no surface maintenance should be necessary for several years on this type of pavement, if properly constructed.

Asphalt blocks, composed of material very similar to that of the wearing course of sheet asphalt, are molded under high pressure. A 6-inch to 8-inch concrete base and 1-inch sand cushion are usually specified. Like other block types, this material comes ready to lay by hand, and no expensive mixing equipment is required.

Long leaf yellow pine blocks approximately the size of paving brick are used to a limited extent for paving. They should be laid on a smooth-surfaced concrete base with a paint coat of bituminous material as a bedding course and a pitch filler for the joints. As long as moisture can be kept from the blocks, this type renders excellent service.

Stone block laid on a concrete base with about 1 inch of sand as a bedding course, makes a durable pavement. The joints are filled with asphalt. With the smoothly cut blocks now being produced, an even surface can be secured which compares favorably with other high-type pavements. This is principally a heavy traffic type, however.

Conclusions

In order to economize on the high-type pavements, only the arterial drives can be designed to carry two lines of traffic, and the feeders or lateral drives can be limited to about 8 feet in width, with suitable signs erected providing for one-way traffic. The thickness may be reduced somewhat as compared with highways or streets, but must provide for the occasional heavy truck-load of stone markers to be expected in any cemetery.

Road types cannot be justly compared on first cost alone, as is so frequently the case. To arrive at a fair comparison, the average annual cost over the economical life under similar location and traffic conditions should be considered.

ACKNOWLEDGMENT.—From a paper read before the American Association of Cemetery Superintendents.

Snow Removal in Brockton, Mass.

By ARTHUR J. CREEDEN

SUPERINTENDENT OF STREETS, BROCKTON, MASS.

IN order to expedite snow removal in Brockton, the city is divided into districts and each district is placed in charge of a foreman. It is the foreman's duty to see that all streets, sidewalks, catch-basins, crosswalks and corners are taken care of, and to keep in touch with the stable office at intervals so as to be able to meet any emergency which may arise in any section of the city, with proper equipment and with promptness.

Actual removal starts with the storm. When two inches of snow has fallen and it is still snowing, all equipment is started out, each plow in its own district, continuing until all streets are open and the snow is pushed back on both sides at least by one or more trips of the plow to make room for another fall of snow within 24 hours. If the snow is an average one and the weather clears, the trucks are immediately called out to patrol all districts, pushing the snow back to the curb line the day following the storm.

Mead-Morrison tractors are used on the outskirts in the narrow roads that have a tendency to drift, and a Walter Snow Fighter is used as a patrol unit on all the arteries to the outside towns. Barber-Greene loaders are used in the business section of the city, and the hauling is done at night, so that the business section is cleaned and ready for traffic next morning. This is an important feature which greatly expedites the handling of business traffic.

The equipment used consists of one Walter Snow Fighter, two Barber-Greene loaders, two 5-ton Mead-Morrison tractors, two Wehr one-man power graders, ten Stark V-shape plows rigged on trucks varying in size from 2½ to 5 tons, and 52 horse-drawn sidewalk plows.

Municipal Electric Plant in Hawarden, Iowa, Expands Rapidly

By FRED A. GEFKE
CITY CLERK, HAWARDEN, IOWA

THE municipal electric light and power plant of Hawarden, a small city of 2,612 people (1925 census) in northwestern Iowa, has recently added a 750-hp. diesel engine to its existing equipment of two diesels totaling 700 hp., because of the doubling of the load in the three years since the others were installed.

Diesel Engines Adopted for Enlarged and Rebuilt Plant

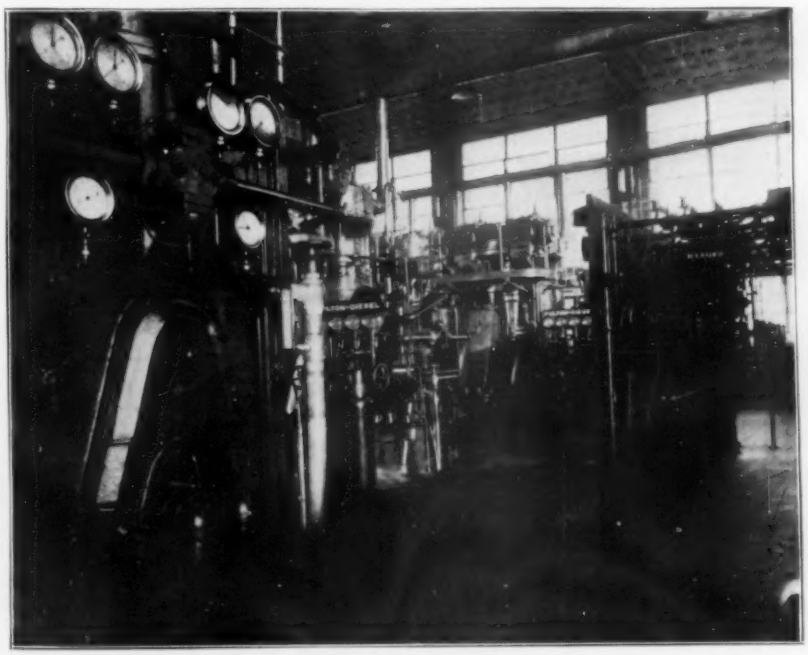
From 1894 to 1925, Hawarden had a municipal plant operated by steam; but in the latter year, the plant being too small for the ever-increasing load, despite many additions and improvements, the City Council made a complete investigation and decided to build an entire new plant and install diesel engines. A special election was called to vote bonds in the amount of $50,000, and although three large high-line companies were trying to obtain the electric business, the issue carried by a vote of 852 to 32.

The successful bidders for the new plant equipment were the Fulton Iron Works Co., of St. Louis, Mo. They received an order for one 300-b.hp. and one 400-b. hp. diesel engine. Inasmuch as the total cost of the building and equipment amounted to a little over $90,000, the Fulton company took a lease contract on the 400-hp. engine, in the amount of $29,500, which was paid off in the first year of operation of the diesel plant.

Savings in Fuel and Repair Costs

It is interesting to note that the fuel costs for the last four years of steam operation averaged $22,239 per year for coal alone, while the cost for fuel oil for the first year of operation of the diesel plant was only $4,142, a saving in fuel of more than $18,000. With the steam plant, station repairs averaged over $1,000 yearly, while with the new diesel plant this item was only $41.75.

With the increased power the plant now had available, the production doubled by 1928, when another order was placed with the Fulton Iron Works Co. for an additional unit of 750 b.hp., which is being paid for entirely out of the earnings of the plant. This installation gives Hawarden one of the largest municipal plants in the state and one of the most efficient power stations in this part of the United States. The plant is equipped with air filters, for intake air, centrifuge for the purification of lubricating oil, enclosed cooling system with water softener—in fact, it is a model plant.



INTERIOR OF HAWARDEN MUNICIPAL POWER-PLANT
The new 750-hp. Fulton diesel engine is in the foreground, with the 400-hp. and 300-hp. diesels to the rear. Side and back of switchboard appears to the right

Production reports for the plant for the past 3½ years, since the installation of the diesels, are given here, and it is interesting to note how the production costs have been reduced as the load increased, and also that the cost of repairs for the entire plant for this period is very low. The only shutdown during this period was for the rebuilding of outside lines, after the serious flood of September, 1926, the plant being just outside of the flood district by a few feet.

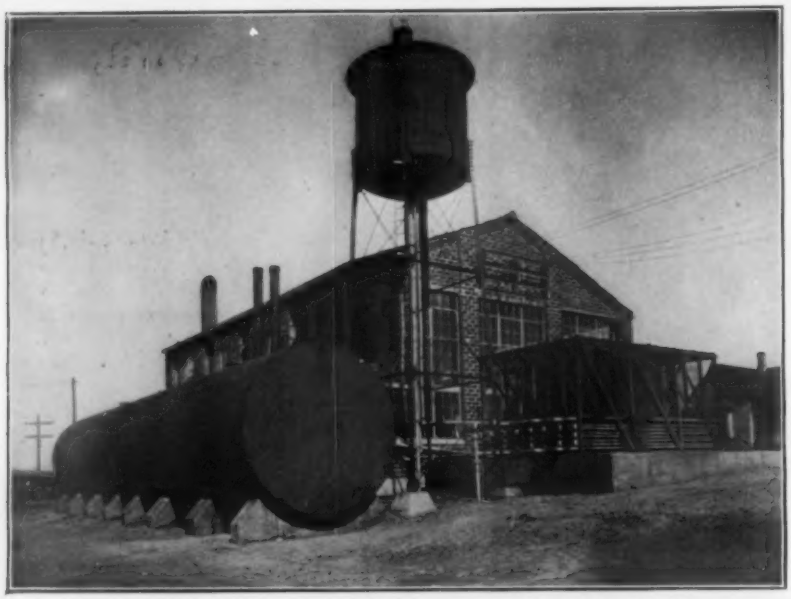
A complete record is kept of the plant operation, by means of a daily log sheet, which requires the engineers on duty to make a complete check of each unit in operation hourly and make the entries on the report. This gives a complete record of fuel and lubricating consumption, checks cooling-water temperatures, air pressures, etc., so that engines are always in perfect condition. The production report given here, is the result of this report, as tabulated monthly and then yearly. Sample log sheets are available for distribution.

Special Daylight Rate Builds Up Off-Peak Load

The city has a special rate for users of daylight power who contract for 2,500 kwh. monthly, which has proved very attractive and is building up the off-peak load. The day load this present year has about averaged with the night load and, if this condition continues, will

PRODUCTION-COST REPORT, HAWARDEN MUNICIPAL LIGHT AND POWER PLANT

	Kwh. Produced	Kwh. per Hr., Average	Fuel Oil, Gal.	Kwh. per Gal.	Repairs	Salaries	Fuel Oil	Lub. Oil	Misc. Expenses	Total Expense	Cost per Kwh.
Year ended—March 31, 1926...	529,750	60.87	69,177	7.65	$41.75	$5,044.90	$4,142.18	$424.71	$ 299.78	$ 9,953.32	$ .0188
Year ended—March 31, 1927...	573,300	65.52	71,217	8.02	52.30	4,802.61	4,502.61	372.97	417.62	10,148.11	.0177
Year ended—March 31, 1928...	738,900	95.04	82,914	8.87	137.58	4,781.50	4,571.08	305.91	1,041.86	10,837.93	.0146
Seven months to Oct. 31, 1928..	609,000	118.26	66,250	9.45	.....	3,191.90	3,400.25	229.68	689.89	7,511.72	.0122



THE HAWARDEN, IOWA, MUNICIPAL POWER-PLANT BUILDING
The fuel-oil storage tanks appear at the left. At the right is the cooling system for the engine-jacket water

make the day-light production larger than the night.

Within a year and a half the bonds will all be paid off, the final payment made on the new unit and everything paid up in full, from the operation of the plant. No taxes are levied for the bonds, and all street lighting is furnished without cost. This makes it possible for Hawarden to have one of the lowest tax levies for municipal purposes of any city in the state.

The original plant in 1894 included two boilers, a steam engine and a 50-kw. generator. The cost was less than $10,000, and was met chiefly from a bond issue of $8,000, which was purchased by a local banker for $8,106.

The original rate schedule was in part as follows:

1894 Rate Schedule

Commercial Rates—
Including stores, restaurants, hotels, livery stables, offices and all public places not otherwise provided for
One lamp per month, 16 cp. $1.00
Two lamps per month, 16 cp. 1.75
[With further graduations, all lamps above 35 being 10c each per month]
32-cp. lamps will be charged for at double the rates for 16-cp. lamps less 10 per cent.
Residences—
One lamp per month, 16 cp. ..... $ .75
Two lamps per month, 16 cp. 1.30
[Graduating down to 20c per lamp after 15]
Churches halls and lodges, all 16-cp. lamps 35c each. The city will bring all wires into the building and do plain wiring, including lamp sockets and first lamps, free of charge, for all parties. The city will furnish lamps and renewals at 50c each. Concealed wiring and ornamental fixtures will be charged for extra, at actual cost. All wires, sockets, etc., remain the property of the city, and its duly authorized servants may enter the premises at reasonable hours to inspect, test or repair connections. Customers are expected to use light reasonable. The rate charged does not contemplate the continuous use of all the lights between hours when plant is in operation, but only those actually needed.

The present rate schedule is given below. It is expected that in the near future the rate will be lowered and also that city taxes will be eliminated, so that Hawarden will be added to the small list of tax-free cities, so far as local levies are concerned—made so by the earning power of the municipal light and power plant.

Present Rate Schedule

Electric Rates:
Lighting—

	Per Kwh.
First 100 kwh	10c
Next 200 kwh	8c
All over 300 kwh	6c

Minimum, monthly, $1.00
Combination residence light, heat and power—

	Per Kwh.
First 30 kwh	10c
All over 30 kwh	4c

Minimum, monthly, $4.00
Heat—

	Per Kwh.
First 50 kwh	5c
All over 50 kwh	4c

Minimum, monthly, $2.50
Power—

	Per Kwh.
First 50 kwh	8c
Next 100 kwh	7c
Next 500 kwh	6c
Next 500 kwh	5c
All over 1,150 kwh	4c

Minimum, monthly

First 2 hp	$2.00
Over 2 h.p., per hp.	0.50

Contract, daylight hours only—
per kwh 3½c

Prohibition's Darkest of Nights

WITH all the conflicting masses of testimony offered by politics and the public press; with all the news and views colored by selfish interest and profound prejudice, who is able to make a valid estimate of the present actual status of Prohibition the country over? Or to say what gains have been made under it, and whither it is tending?

No one better perhaps than Dr. Irving Fisher, Professor of Economics at Yale University, and one of Prohibition's most acitve protagonists. Dr. Fisher has recently followed his "Prohibition at its Worst" with a new volume, "Prohibition Still at its Worst," a volume which presents in forceable and striking contrast the opposing views, from the most authoritative sources, of wets and drys on all the most outstanding aspects of the whole bitterly controverted subject. The author's conclusions are summarized as follows:

"Prohibition is admittedly not yet out of its worst period. But it symbolizes the freeing of a nation from the toilsome drudgeries of its ancestors and from their drowning of their sorrows in drink. Even in the opinion of the wets, the saloon is banished forever. The period of the trial of Federal Prohibition by the civil service has begun. The people, attracted by the healthful diversions of a life of ordered industry and growing leisure, have thus far by their votes fully ratified the beliefs in which a searching and impartial study has confirmed us, as follows:

"1. Present conditions of law enforcement under national Prohibition are intolerable and must be corrected.

"2. Even so, they are not so dark as they have been painted. Moreover, if we do ultimately correct them, they are now in the nature of temporary evils, destined to fade away in a few years, while the good from Prohibition will go on indefinitely. Mrs. Elizabeth Tilton does well in calling attention to the length of time taken for the effectual prohibition of the African slave trade—from 1807, when it was legally abolished, to 1871, when the last act was passed to enforce the law. William Allen White points to the generation needed for making prohibition of the liquor traffic effective in Kansas. A period of eight years for the nation is short indeed, and, in view of the material and spiritual gains attainable, thrice that number of years spent in more effective enforcement and public education would be well rewarded.

"3. Prohibition has already accomplished incalculable good, hygienically, economically, and socially.

"4. Real personal liberty, the liberty to live and enjoy the full use of our faculties, is increased by Prohibition.

"5. Light wines and beer cannot be legalized without another constitutional amendment.

"6. No such amendment can be passed.

"7. All that the wets can possibly accomplish is laxity of enforcement, or nullification; in other words, enormously to increase the very disrespect for law which they profess to deplore.

"8. Therefore, the only satisfactory solution lies in fuller enforcement."

Oiling Methods on Denver Streets

New Methods Expected to Save Money in Upkeep of Surfaced Thoroughfares

THE use of a new 60-70 asphaltic oil, shipped in from Wyoming and California and tested in the city's laboratory, is expected to reduce the yearly cost of maintenance of Denver's oiled streets, of which there are now about 60 miles, according to F. J. Altvater, head of the Highway Department. Heretofore these streets have been re-oiled once per year, and frequent patching of weak spots has been necessary. After the second application of the new oil, next year, they are expected to stand up under traffic for a longer time, as a much smoother surface is possible with it. Having a much stronger asphalt base than the binder formerly used, the surface of the streets is made more impervious to snow and water, and a great deal of complaint from housewives, of the messy effects of the oil on their floors and carpets, has been silenced.

Specification for 60-70 Asphaltic Oil

Description.—Oil furnished under these specifications shall be the product of an asphaltic base oil. It shall be a naturally homogeneous oil or a homogeneous residue from oil. It shall not have been distilled at a temperature high enough to injure the oil by burning or to produce flecks of carbonaceous matter.

Asphaltic oil shall contain not less than 60 per cent nor more than 70 per cent of asphaltic residue having a penetration of 80 at a temperature of 77° F.

Requirements.—Water and sediment combined shall not exceed 2 per cent. A.S.T.M. method D96-24.

Asphaltic residue having been reduced to an asphalt of 80 penetration on Brown evaporator at 565°F. will have a minimum ductility of 5 cm. at a temperature of 34°-35°F. Penetration ASTM-D5-25.

Ductility ASTM D113-26T.

Wax or paraffin shall be less than 2 per cent. IPT method A 31.

Specific viscosity Engler 1.22 F. 50 cc. shall be 25 to 45.

Per cent of asphaltic oil soluble in carbon tetrachloride not less than 98 per cent.

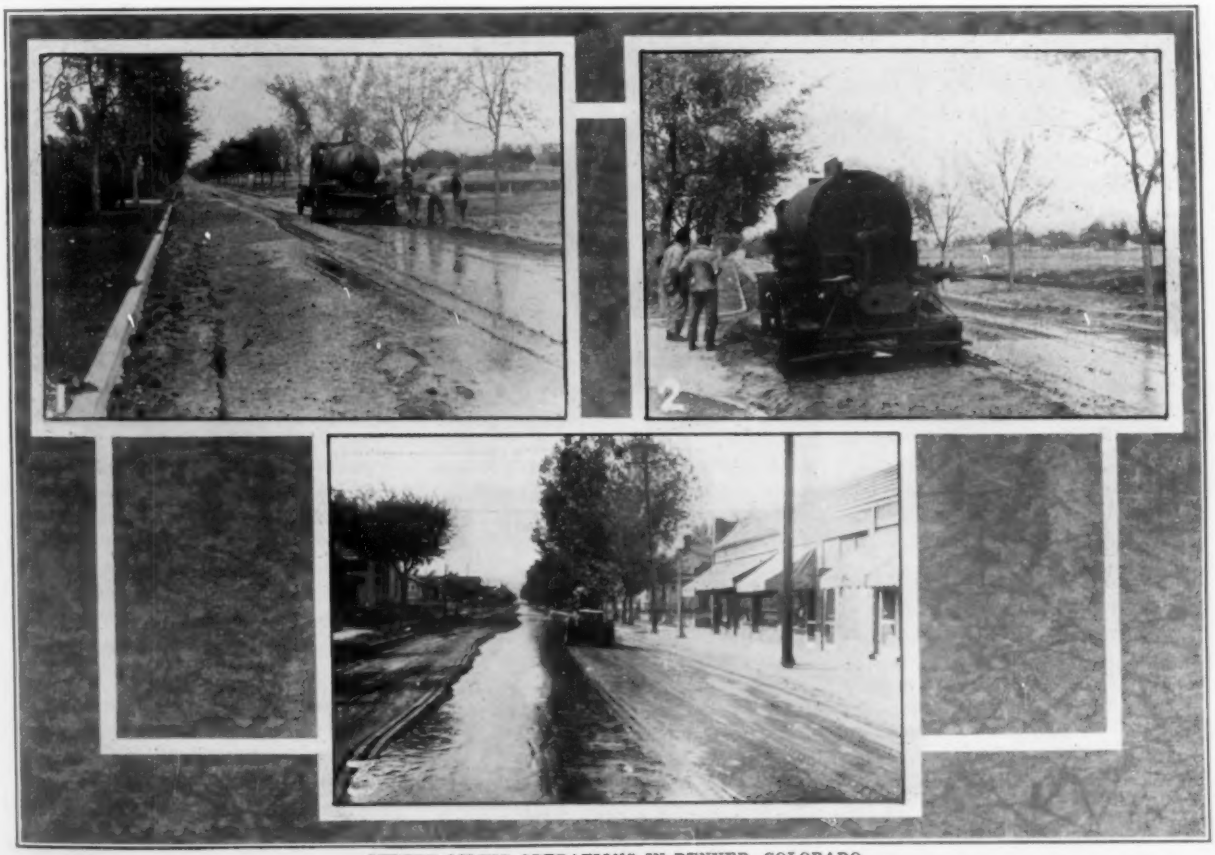
Measurement.—As a basis for payment, a gallon of asphaltic oil at 77°F. will be considered the unit of measurement.

Specific gravity at 77°/47°F.

By the end of the present year approximately 800,000 gallons of the oil will have been used on the streets of the city, and on the Bear Creek and Vernon Canon roads. With the exception of these last-mentioned jobs, and the building of fifteen blocks of rock penetration surface on Federal Boulevard, and the oiling of four miles of new street within the city limits, this has been used for re-oiling streets previously surfaced. On such streets from ½- to 1¼-gallon of oil was applied. On the new surfacing more oil was required.

Preparation of Roadway Surface for Oiling

Since the four miles of new surfaced street, as well as those already oiled before, was well packed, no rolling was required. After the curbs and gutters were run, the graveled surface of the street was bladed back against the curb, obtaining a smooth surface for the oil, and at the same time reserving enough gravel to cover the oil. This was applied by internally heated distributors of various makes, holding from 800 to 1,100 gallons. The air pressure was controlled by a man on the rear end of the distributors, on some of which the compressor was also located at the rear, and on others just back of the driver's seat and operated by the driver. Oil was heated at the city's oil plant.



STREET OILING OPERATIONS IN DENVER, COLORADO

1. The first application of oil is sprinkled lightly with sand by hand to prevent running. 2. Close-up of one type of 1,000-gallon pressure distributor used in Denver. 3. Riddell one-man grader working sand over the fresh oil

Oiling Operations

On the first round of oiling, three men followed the machine with shovels scattering a small quantity of gravel over the oil to prevent its running off the slope. When the entire surface was oiled, the surplus gravel at the curbs was bladed back over the street, and the next day the street was opened to traffic. On the streets previously oiled little blading was required before oiling, and it was necessary to distribute sand along the gutters, at the rate of about 24 yards to the block, with dump-trucks. This was bladed to the curb before oiling began. Blading, with the H-P one-man graders, was kept up at intervals for about a week after the traffic was released on the streets, but no rolling was required. Four makes of distributors were used—a Worley-Logan, a White, an Etnyre, and a Gilmore.

Costs

The cost of oiling the streets runs about $800 per mile, as compared with $30,000 to $40,000 for concrete and bituminous macadam. In the eleven years that Denver has been oiling her streets many experiments have been made, but the new oil has already proved its superiority over previous mixtures. Of the 75 miles of street improvements planned for 1929, 35 miles will be paved, and much of the remainder will be oil surfaced.

Federal Boulevard a Test Section

On the fifteen blocks of rock penetration surfacing on Federal Boulevard, from 4 to 5 inches of crushed stone was used, of which 1½ to 3½ inches is base. On seven blocks small chips were used to key this stone, and on the other eight blocks a loam binder was used. Twelve-ton rollers packed the base, after the subgrade was thoroughly drenched with water by sprinklers. Eight-tenths-gallon of oil per square yard was then applied, followed by a layer of stone from ½ to 1½ inches in diameter. After rolling this, another ½-gallon of oil was put on, and then the final coat of fine chips, from ½-inch down. Another rolling finished the process, after which a thin coat of sand was spread on the street. This section of surfacing is in the nature of an experiment, to ascertain the best method of applying an oil surfacing to the heavier arteries of traffic, as well as to determine the final cost of such method.

The hills on Federal Boulevard were cut down and the surplus dirt was used for fill to reduce grades. One of the most important fills was at the intersection of Eighth Avenue, which is to be extended through to Federal Boulevard, with a viaduct over the Denver & Rio Grande Western slopes, making another east-and-west artery. A new steel and concrete bridge over the Platte River, now under construction, is a part of this extension work. Other improvements planned for 1929 include the extension of Speer Boulevard across north Denver to Tennyson Street, and the widening of the latter; a municipal golf course at Berkeley Park; three new subways; four new fire-stations, and the completion of a municipal airport which is now under construction.

Is it Desirable for Cities or Counties to Purchase Materials to Be Furnished to Public Contractors?

A Summary of Reports from 24 Counties and 62 Cities in the United States, Compiled by the Municipal Reference Bureau, Cincinnati, Ohio

THIS summary is derived from jurisdictions where the practice under inquiry is in use, has been used and abandoned, or has been contemplated and not adopted. Those reporting the public purchase of materials for public works to be furnished to contractors but indicating further that the purchased materials are used by direct labor and not supplied by contractors, have been treated as negative responses to the inquiry. A number of negative responses have also indicated that legal and financial difficulties would not permit the practice.

Extent of Practice

Five counties reported that they now furnish some material to contractors, and another reported that it did upon special occasions. One county stated that it purchases certain materials for repairs only, but it is not certain from this answer whether these repairs are made by contract or by the direct employment of labor or by the county officials.

Three counties report abandoning the practice of public purchase of material for contractors entirely, and one of the five reports a diminished use of it.

Thirteen cities report that they now furnish some material to contractors. Of these thirteen, one does it in special cases only, and one very rarely. One city tried the method once and found it successful on that occasion. Two cities take bids and guarantee prices to contractors. This method calls for the city's taking bids in behalf of the contractors, who are then permitted to purchase directly at the prices obtained and guaranteed by the city. Four cities which formerly used the practice report its complete abandonment. Two of the thirteen cities use the practice for fewer materials than formerly.

Material Purchased

The material which figures most extensively in the experiences reported is portland cement. The materials upon which the results of experience are most nearly uniform are culvert pipe, sewer pipe and castings.

Regarding the items last named, the Municipal Reference Bureau believes that the practice under discussion is more widely followed than the replies indicate. The reply form used did not specifically mention them, and in some cases the authority furnishing the reply may not have been in direct contact with sewer work.

Administrative Methods

Most of the authorities which furnished materials require contractors to bid upon the basis of using the material furnished. A few allow the contractors to submit bids upon the basis of using materials furnished by themselves, or upon both bases.

Relatively few responses were received to an inquiry whether purchases were made on the basis of requirement for a year, a season or each project. Five cities, however, reported using the yearly basis, one county uses the season basis, and another county the project or job.

It was found usual that the vendors delivered at or near the site of the job. Inquiries as to the waste of furnished materials and as to the ease or difficulty of securing the use of the full amount of material required and of securing satisfactory workmanship, produced a number of replies, a few of which report no difference, and most indicated some greater ease in these particulars as

against construction wherein the contractor furnishes all material.

Disadvantages

Not all the authorities which have abandoned the practice under discussion have done so by reason of very positive disadvantages. Some of the particular difficulties which arose in special cases have no bearing on the general merits. In a few cases no disadvantages appear to have figured in the discontinuance. In others, it was rather the apparent absence of either advantage or disadvantage that led to the discontinuance, and it should be noted that in a number of jurisdictions the practice is retained for certain items after its abandonment as to others.

The most vital disadvantage appears to be in the difficulty of securing timely deliveries. Several reports mention that in such case the authority has to bear the responsibility for delay and even to indemnify the contractor for his losses caused thereby. This difficulty does not appear to figure with those who continue successfully to use the method.

Akin to this difficulty is another, namely, the annoyance of the responsibility for materials furnished and the additional clerical work involved.

Advantages

The outstanding advantage cited by authorities which do furnish materials is the saving in money cost. This is achieved by virtue of purchase in greater quantities and at more favorable times than could be done by one contractor, by trade and cash discounts, by transportation cost differentials, by tying up less of the contractor's capital, by avoiding the margin which the contractor would add to his costs for the same material, by using state products, etc.

The amount of such savings reported is not susceptible of summary statement or comparison. It appears that in some cases the reports declare no savings were made at all.

In the case of sewer pipe, castings, bridge construction materials, etc., it appears that the additional advantage of timely and proper delivery is generally obtained to a greater degree than when the contractor furnishes the material.

In addition, certain authorities are of the opinion that they more surely obtain the use of good materials in the full amount, better workmanship and better inspection where certain materials are furnished.

Related Methods Reported

The practice reported by Seattle and Spokane appears to be designed to secure any price advantage possible by the exercise of the larger purchasing power of consolidated contract requirements without incurring any administrative difficulties inherent in the actual handling of material. The contractor is guaranteed that he may procure material under the bid accepted by the public authority, and bids upon that assurance. The supplier has the assurance of a volume of business which enables him to bid well.

Excerpts from County Reports

While the bulk of the material digested in the previous sections is too great to permit transcription, a number of items appearing in various reports are sufficiently illuminating to warrant presentation. The excerpts which follow are not selected as typical and do not present a composite of all replies. Rather, they illustrate particular local situations and include more nearly all the unfavorable replies than the favorable.

King County, Wash. — "The practice here has been limited to the purchase of cement only. This practice came about as a result of the activities of the cement company in its selling program. As a result, the small contractors find an advantage by purchasing through the county, and evidently the cement companies find it advantageous, since they can count on so much more business." The report further calls attention to the fact that there does not seem to be any advantage to King County, as the larger contractors purchase cement from various sources other than those from which the county has purchased.

Los Angeles County, Calif.—"We have found that it is to our interest not to furnish material to our contractors. Not only do we become responsible for possible damage claims in case the contractor is delayed through non-delivery of material at the time when ordered on account of failure of our source of supply to make delivery, but it developed that in many instances contractors were able to obtain material at better prices than the county. It has relieved us of a great amount of administration and responsibility, while the contractors can make advance arrangements by competitive offers to obtain material in case their bid is accepted and they get the contract.

"It is only for a certain class of bridge construction that this department furnishes such material as is not obtainable for immediate delivery from the local market but has to be shipped in from distant points. This would delay the contractor in starting the work. This material consists of pipe, both treated and untreated with creosote, creosoted lumber, heavy dimension lumber not carried in regular stock at lumber yards, and steel I-beams of standard dimension."

Cook County, Ill.—"Prior to 1928, cement was purchased by the state of Illinois and furnished to Cook County. In view of the large program of the county, for which 700,000 barrels of cement would be required, the Board took bids and awarded a contract."

Wayne County, Mich.—"This Board furnishes to contractors all portland cement, aggregate, metallic and flexible joint materials required for pavements, and in all cases contractors are required to bid on that basis.

"We contract during the winter for all the ensuing season's anticipated requirements in the above material, and the vendors are required to deliver it at such sidings in Wayne County as we may designate. We believe our plan has the following advantages:

1. It assures without controversy the use of full amount of material required by specifications.
2. There is very little waste of material.
3. We believe we are able to purchase these materials at considerable savings.
4. We assure ourselves of better materials, as we have absolute control of inspection and are dealing direct with vendors."

Multnomah County, Ore., does not now purchase, but did purchase, the cement for the reconstruction of a large bridge and the laying of a concrete deck on the bridge. It proved very satisfactory in that there was no question as to the county's getting the proper amount of cement in the concrete.

Sedgwick County, Kans.—"It is pertinent to say that Sedgwick County, in which Wichita is located, bought materials for 7 miles of brick highways about 1919 and then advertised for bids on the basis of material being furnished at a certain specified unit price. It developed at that time that there was a great deal larger demand for those materials than could be supplied, so that dealers were being offered a premium for immediate delivery. This the county could not pay. As a result, a large amount of cement shipped to the county was being sampled at the mill while still hot and was rejected on that account after it arrived at its terminus. This would consume a week or ten days, after which the cement would be diverted to other jobs at a premium while the county's contract was tied up waiting for the same material. This is one instance which came to our notice of the undesirability of dual management of the same construction job."

Reports from Cities

Charleston, S. C.—"On only one occasion do I remember that the city purchased material (in this case vitrified brick) for a contractor to use in public works. Because of its better financial rating, the city obtained a more favorable quotation from the manufacturer than did the contractor. The material was brought from Philadelphia by sailing vessels, some of which were delayed. The contractor for laying the brick, notwithstanding fairly tight specifications, claimed delay, and a three-cornered controversy ensued between the city, the contractor and the manufacturer. While the city won out, we have not tried this method since."

Dayton, Ohio.—"The only experience which the city of Dayton has had in the purchase of materials to be used in contract work was about twelve years ago during the construction of the Fifth Street,

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WHEN this emergency arises there is no better solution for providing safety to the traveling public than to be prepared by having equipment and materials on hand and ready for immediate use. Eight GOROCO Sand Spreaders can be stored in a space required to store one five ton truck.

With everything in readiness and while the storm is in progress, trucks can be loaded with sand or cinders, Spreaders attached and quickly dispatched to various points where the danger of slippery pavements can immediately be eliminated.

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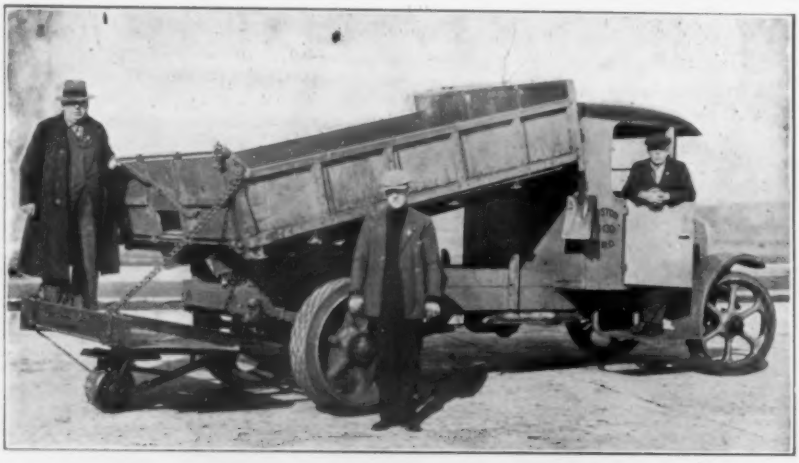

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THE GOROCO MECHANICAL SPREADER CO.

Upper Darby P. O., PHILADELPHIA, PA.

Webster Street and Keewee Street bridges. At that time the city purchased cement and steel, and it was so specified when the bids were taken that these materials were to be furnished by the city. Our experience at that time was that while there probably was a certain amount saved by the purchase of these materials, this saving was more than offset by the inconvenience experienced in handling the materials between the city and the contractor. Since that time we have always taken bids on the basis of the contractor's furnishing all of the material and doing all the work."

Detroit, Mich.—"Previous to 1914 the city of Detroit furnished the paving brick and creosote block for new pavement. These materials were delivered to the contractor at the site of the job. This practice was discontinued in 1914 on the adoption of sheet asphalt pavement as the standard for all pavement. Previous to 1910 the portland cement was furnished for all sewer contracts. This practice was discontinued at that time. Disputes over the returning of the empty bags and unused cement were factors that helped lead to the decision to discontinue the practice."

New Orleans, La.—"The city of New Orleans has never put this system into use, having been legally prevented several years ago from supplying asphaltic mixes to contractors from its own plant. Our contracts are all predicated on a unit price basis for work complete in place, the contractor supplying his own material."

Pittsburgh, Pa.—"The principal reason for the purchase of materials by the city is to secure such material at a better price, get prompter deliveries and a more satisfactory and uniform product. Administrative work and the difficulties often encountered in municipal administration are lessened, as it is easier to secure a limited number of good inspectors than it is to secure and manage a large number of inspectors scattered over a large number of plants.

"During the current year, in an attempt to secure more reliable bidders upon our contracts and to determine whether or not our practice in regard to purchase of water-line castings was satisfactory, we awarded two contracts for water-line construction whereunder the contractor furnished all materials. We found that it did not make any difference as to reliability of bidders, as the material manufacturer apparently will sell to any bidder, providing he can get a surety bond, and bidders appear to be able to get surety bonds without much regard for their qualifications and financial standing. The prices for the work did not indicate any saving as a result of the contractors' furnishing the materials themselves, and probably the costs are greater, as the contractors naturally include a profit on the materials purchased for use by them.

"So far as this city has gone in adopting the practice of purchasing materials for use in contracts, I believe that the results have fully warranted and justified the adoption of the practice. Whether or not it would be advantageous to go further is questionable. In order to avoid excessively high contract prices on contingent items for certain materials, we fix the prices in the proposal for certain materials; thus, for instance, extra bags of cement and sheeting and bracing left in place."

Rochester, N. Y.—"The practice was tried and found successful (cement only) on one sewage disposal plant job."

Seattle, Wash.—"We have a tentative agreement with the cement companies whereby the contractors may purchase cement through the city at a price somewhat below the sum for which it may be purchased in the open market, but about all this amounts to is that the city guarantees prompt payment to the cement company, as no attempt is made to store the material."

Wichita, Kans.—"About 1919 this city handled a million dollars' worth of miscellaneous pavement and sewers, awarding contracts on the condition that the city purchase and finance the necessary materials for the work. We did buy under this contract 2,000 tons of asphalt in advance of an increase in price and obtained delivery very promptly as material was needed. The last of it was used after the price had increased 100 per cent. On the face of it, this looked like a considerable saving to the city, but the contractor could have accomplished the same end. Our difficulty chiefly consisted in a number of attacks through the court, Grand Jury and otherwise of alleged illegitimate contracts and alleged official profiteering and grafting through those large purchases in collusion with the contractors. Our energies and efforts were consumed for more than a month in defending ourselves against these attacks, with a possible saving to the city of not to exceed 1 per cent of the cost of the improvement. This saving consisted essentially in the difference of the interest the city had to pay and that which the contractor would have had to pay."

Snow Removal in Lansing

By ALFRED WINEGAR

SUPERINTENDENT, DEPARTMENT OF PUBLIC WORKS, LANSING, MICH.

FOR many seasons the sidewalks in Lansing, Mich., have been cleaned by horse-drawn plows. The city has added to the number of plows as needed, until there are now thirty-one. It will not be many years before these will go to the junk yard, for each year it is more difficult to hire teams and drivers that can be depended upon. When a large amount of snow falls during the night, it is necessary that work should commence in the morning before daylight if any satisfaction whatsoever is to be given to the public and not all of the drivers are willing to start as early as this.

Last year a Barber-Greene snow loader was bought which was satisfactory for removing drifts from the streets, but as this work cannot be done during the day, because of the solid lines of parked vehicles, it is necessary to wait until night before working. Many taxpayers cannot understand this, and the department is subjected to much severe, unjust criticism on this account.

At the Council meeting of November 12 it was decided to order three motor-driven snow-plows of various makes on trial.

This issue of THE AMERICAN CITY contains a wealth of material on the organization and equipment of cities in the snow belt for fighting the retarding effects of heavy snowfall in business and suburban districts. Several additional illustrated articles are already at hand and will be published in the March issue. A careful study of these articles may prove helpful to you.

Road Construction in the Philippines

HAND METHODS STILL PREVAIL IN MOST SECTIONS OF OUR PACIFIC TERRITORY
At left, a modern Philippine road scraper. The carabao is the tractor. The scraper is a field tiller adapted to road work by weaving a few strips of bamboo into the spikes. At the right is shown excavation with pick, shovel and wheelbarrow. Note the dirt pillars left to accurately show the depth of cut

Reproduction from a color photograph of El Contento, the estate of Warren Wright, Golf, Illinois, by Wilfred O. Floing © The D. T. E. Co., Inc., 1923

Among prominent persons and institutions served by Davey Tree Surgeons are the following:

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GREENWICH, CONN.
TREE ASSOCIATION
ERLANGER COTTON MILLS
MICHAEL F. CUDAHY
KANSAS CITY PARK BOARD
SIR THOMAS TATE
RANDOLPH-MACON SCHOOL
ROBERT BACON FARM
RUTH DEAN
C. SIDNEY SHEPARD

JOHN DAVEY
1846-1923
Father of Tree Surgery
Reg. U. S. Pat. Office

A science, a philosophy, an ideal

Most people have had an instinctive love of nature, even before the time when "the groves were God's first temples." But few seemed to realize that trees were actually living, breathing things and subject to disease and death. More particularly, no one ever dreamed that anything could be done to save them.

Then John Davey came into the world; and because he was an unusual lover of nature, he chose to acquire training in horticulture.

Before his time trees were more or less generally the victims of neglect and often of abuse. John Davey conceived a great idea; he studied the sciences to provide a basis for his theories, and then worked out a systematic method of treating trees to save them. This was nearly a half century ago.

Only occasionally is a man permitted to give the world a new idea. John Davey did more than this. He created a philosophy, built around his new science and based on the essential principle that the tree is a living, breathing organism.

To him this whole thing became a great ideal. Under his forceful and devoted leadership there was developed a system of principles in practice and conduct, of business and professional ethics.

No man can continue in the Davey Organization, although John Davey has been dead six years, unless he remains true to the science, the philosophy and the ideals of the founder. You can trust Davey Tree Surgeons. They will do only those things that ought to be done in your interest.

THE DAVEY TREE EXPERT CO., Inc., 290 City Bank Bldg., Kent, Ohio

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Send for local representative to examine your trees without cost or obligation

DAVEY TREE SURGEONS

MARTIN L. DAVEY, *President and General Manager*

What the Bureau of Food Hygiene Has Done for the City of Utica, N. Y.

By W. G. HOLLINGWORTH, V. S.
VETERINARIAN, BUREAU OF HEALTH, DEPARTMENT OF PUBLIC SAFETY, UTICA, N. Y.

THE duty and function of the physician, veterinarian and health inspector in public health work are definite and inescapable. The efficiency of a health department depends on its personnel; the health officer is the guiding spirit. Whatever success from a public health point of view has been brought about by the Director of Food Hygiene in Utica is due to the cooperation of our Health Officer, Dr. Hugh H. Shaw.

The object of my work is to prevent, or to lessen to a greater extent, the transmission of animal diseases to the human family, and the consumption of unwholesome foods. As soon as a communicable disease appears in the community, the question should be answered —where did it originate? A health department should regulate the preparing, handling, serving and dispensing of foods. In checking up on the means of precaution, prevention, and protection in this field of health preservation, the following alphabetical list of points should be kept in mind: cleanliness, coolness, covers, fingers, flies, pumps, privies, and pestilence.

Taking It to the Public, Not the Politicians

How was food hygiene brought about in this city? For a number of years, especially after an election, I made it my business to call upon the officials and plead my cause. I was always well received, but it ended there. At last I made up my mind there must be some other way to bring this proposition to an issue. I joined one of our service clubs and asked the privilege of speaking at some noon luncheon. This was readily granted. The plan was given to the press, and immediately the wheels of progress started. I was informed by the *Daily Observer*, our afternoon paper, that it would print my address in full, as it was in sympathy with the cause. A date was set for the talk. There was an overflow gathering. Now here is what happened. The next day the Mayor sent word to me to call at his office. He told me that I had started something, as he had had many telephone calls from citizens stating that they were in sympathy with the idea. In an hour at that meeting as much was accomplished as I had tried to do in the preceding twenty years. America is governed by public sentiment. If you have an idea whereby you wish to benefit the community, do not go to the politicians, but to the public.

Securing Meat Inspection

A sum for meat inspection was placed in the budget. This was greatly needed —no more in Utica than in any other city where there are no ordinances for controlling this matter—and there are plenty of such cities. Our work started with the appointment of a veterinarian and a lay inspector. An ordinance was formulated, and from the minute it was passed it has been observed. A large packing industry is located here. We went to see the company to find out whether there was anything that the Health Department could do to help them. We were met with open arms; they told us it was impossible for them to sell their products in some intrastate cities, because Utica had not a satisfactory meat inspection. As soon as possible an organization was formed, two more lay inspectors were appointed, and this meat industry was placed under the supervision of the Health Department; and in a very short time the products from this packing plant were welcomed anywhere in our state.

Communities where no meat inspection exists are jeopardized in regard to public health. Of course, nowadays Federal-inspected meats are everywhere, but to only a certain extent—in Utica, about 65 per cent, and, I presume, in the same proportion in other places; but what about the 35 per cent? I knew what was going on with us. Animals were butchered to save them from dying from natural causes. Even cold-slaughtered animals found their way to market— by that I mean that the throat had been cut immediately after death had taken place and the carcass hung up so as to bleed out as much as possible. Of course this meat could not be sold to the retail butcher, but direct to the consumer at a lower price. So, beware of the high cost of a low price!

People were educated to buy only meats that bore the Federal or municipal stamp, showing that some authority was ready to back up the wholesomeness of the meat. Annually, about 15,000,000 pounds of meat is inspected, and the average amount condemned is about 250,000 pounds, which is sent to the dry rendering plants. A central stamping station was established, to which all carcasses of meat were brought to be inspected—passed, or condemned.

On January 1, 1926, the separate divisions of meat and milk inspection were amalgamated, under the direction of the City Veterinarian, to be known as the Bureau of Food Hygiene, which is now composed of the Chief Veterinarian, two assistant veterinarians, and five lay inspectors. The Chief and the inspectors are on full time, and the assistant veterinarians on part time.

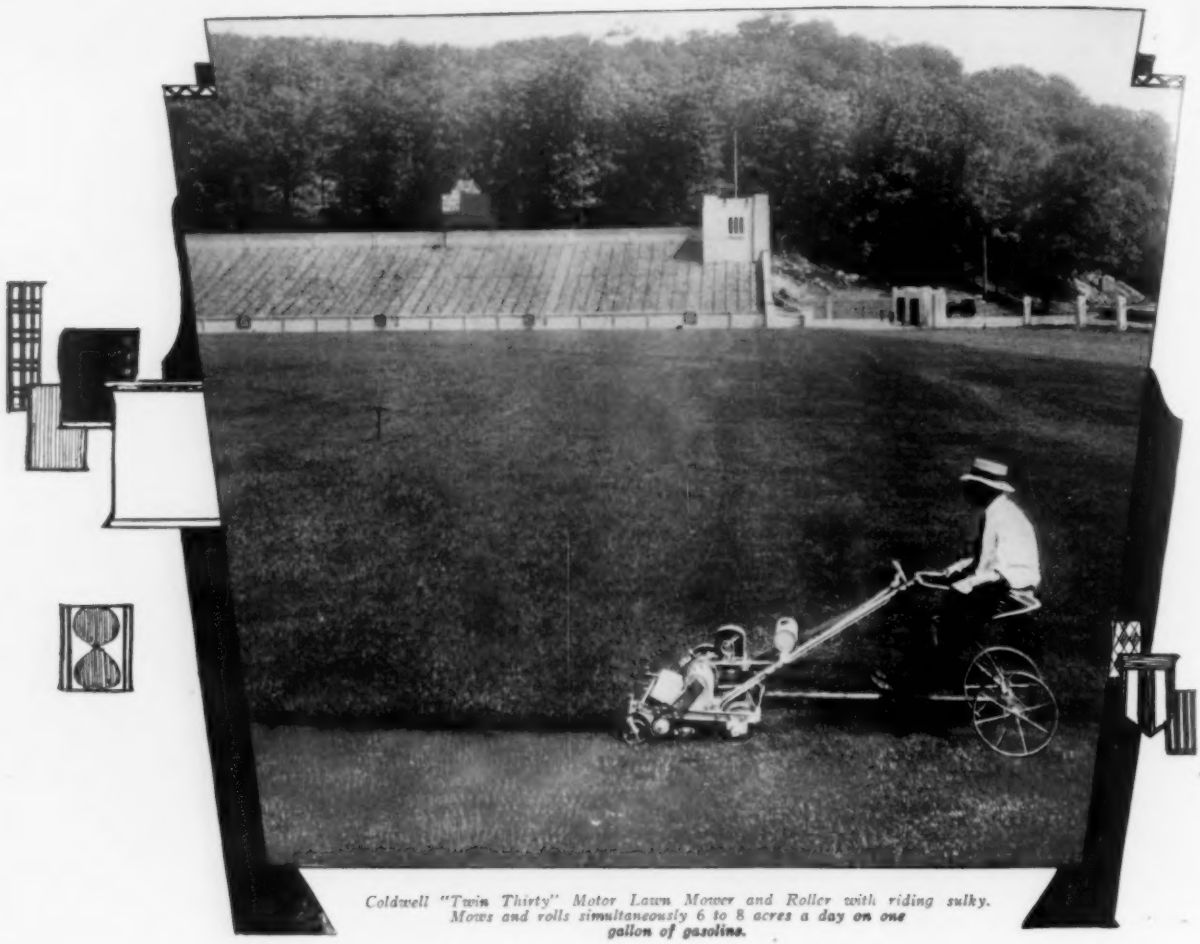
More and Better Milk for Utica

An inspection of milk started, and the conditions found showed that the new departure of the Health Department was timely. Utica then had a population of about 108,000. On checking up as nearly as possible on the quantity of milk consumed daily, it was figured to amount to only 25,000 quarts; there were 78 milk dealers, 7 of whom pasteurized their output.

A meeting of the milk dealers was called to find out why such a small amount of milk was consumed. From the very first, the dealers were notified that the Health Department was anxious to increase the output of milk and would render every assistance possible, and, in return, asked the milkmen to do likewise. Whatever misunderstandings existed, an opportunity was given each and all to speak their pieces. A love feast was started. The first thing, the Health Department told the dealers that weekly samples would be taken, and would be sent to our laboratory, which is under the direction of the State Department of Health. The director of the laboratory would send out two statements about each sample, one to the Health Department, the other to the dealer. Records are kept on file in the Health Department office for public reference, but we do not publish the results of the tests in our daily papers. Our methods were for education rather than prosecution.

The public began to have faith as to the quality of this essential food: January 1, 1927, 41,440 quarts consumed daily; January 1, 1928, 55,990 quarts; January 1, 1929, 60,000 quarts (estimated); and we expect to have a record of 70,000 quarts by January 1, 1930. The number of milk dealers has lessened; there are now 62, 41 of whom pasteurize the milk—a record we are very proud of.

We make annually over 15,000 inspections of stores, meat markets, restaurants, ice cream plants and parlors,



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***DEPENDABLE* LAWN MOWERS**

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hotels, vehicles, bakeries, boarding-houses, coolers, and slaughter-houses as to their sanitary conditions. This has resulted in an increase of business in all the places mentioned, due to the fact that the public—who know more about food they consume than formerly, and want to know more—are more willing to go to these places and to partake of food, whatever its nature. They have faith in the Health Department ideals.

We have done no more than any other city should do to become a place worth living in, for public health is purchasable and any community, under ordinary conditions, can control its own death-rate. As diseases caused by food poisoning are not reportable except in severe outbreaks, the public does not realize the amount of illness, misery, and poverty in communities where food hygiene is neglected. Reports of physicians to the Health Department of Utica show that illness of the type produced by unwholesome food has greatly lessened since food hygiene has been established in our city.

The Outlook for Local Civic-Commercial Organizations

Secretary of Commerce, Whiting Appraises the Work of the Present-Day Chamber of Commerce and Offers a Few Criticisms and Suggestions

SEVERAL pertinent reflections and suggestions on the work undertaken by present-day chambers of commerce were offered by William F. Whiting, Secretary of Commerce, in an address before officials of the National Association of Commercial Organization Secretaries, in Washington, D. C., on January 9.

Secretary Whiting requested his hearers to consider frankly just what functions chambers of commerce can best perform and what problems they should leave to other agencies. Perhaps the most emphatic and interesting portion of the address was a criticism of indiscriminate "drives" for new industries by chambers of commerce whose communities often are entirely unsuited to manufacturing:

"There is one aspect of commercial-organization work to which, I feel, one can hardly accord whole-hearted commendation. It is a movement that seems very much 'the rage' to-day. I refer to the 'drives' to bring about the establishment of new manufacturing industries in a city, whether by enticing them from other localities or by attracting contemplated new enterprises. . . . We hear, rather often, about the land grants, cash bonuses, special concessions with respect to taxation, and other inducements that are offered for the purpose of augmenting the manufacturing activity of a city.

"Please do not misunderstand my feeling in this matter. I would not be considered as discouraging or disparaging the very natural desire to build up a community in the material sense, or to increase the industrial output of our country. But this is capable, I think, of being overemphasized, with, perhaps, a disregard of certain factors that deserve to be considered.

More Factories May Not Mean More Prosperity or Community Welfare

"Great arrays of towering factory chimneys make an impressive spectacle, and one that is unquestionably flattering to civic pride—but they are not an end in themselves. Surely we cannot approve an eagerness to welcome *any* enterprise, of whatever character, whether it can be satisfactorily fitted into local conditions or not. Not every community is able to meet the highly specialized requirements of certain branches of modern industry. And there are a few cases, at least, where the introduction of new factories might conceivably be a jarring or disruptive element, causing maladjustments in a city's economic life. This might be true, especially, where labor questions enter in, with possibly injurious competition for the services of a limited number of working-people.

"I am inclined to believe that in many cases a chamber of commerce might, more judiciously, devote its efforts to increasing the efficiency and the profits of the industries that the community already has. Keeping the figures 'out of the red' is an object just as worthy of an organization's steel as that of bringing in new factories. Such new factories are of course desirable where all the conditions are propitious, but I feel that the ability to procure them should by no means be set up as the main criterion of a secretary's efficiency."

In general, however, Secretary Whiting expressed himself as well pleased with the aims and accomplishments of the average chamber of commerce. Early in his address, he emphasized, with evident satisfaction, the trend away from so-called "boosting" tactics, once employed by practically every chamber of commerce in the country:

"Those of us who have followed the course of chamber of commerce work in recent years have noted with real pleasure the practical abandonment of the old-time 'boosting' methods — mere indescriminate and extravagant laudation of a community, without the essential merit of *definiteness*. That mood and practice are, at the present day, unmistakably in the discard. To a steadily increasing degree, *concrete practicality* is the keynote now. We notice, too, a praiseworthy inclination to avoid wasteful diffusion of energy. This tendency toward concentration upon essentials can, I think, be advantageously carried further by the local commercial organizations. It is plainly inadvisable to spread the effort out too thinly, to try to bring too many matters within the purview of a chamber of commerce, when the resources of that organization permit only a superficial treatment of each of them. Better, surely, to select the things that appear (after careful consideration) to be the most vital and then to 'dig deep' along that channel until a basic betterment be brought about."

Traffic Relief and Fire Protection

The activities of chambers of commerce in the traffic, fire prevention and public health fields were highly praised also:

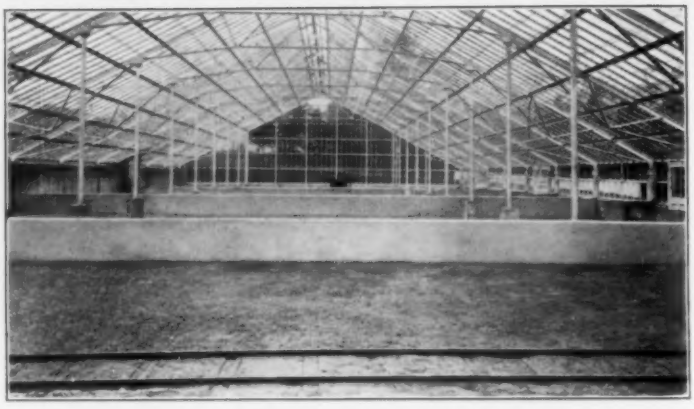
"One notes with gratification the way in which various local commercial organizations are attacking the grave problems of vehicular traffic. Motor-car congestion, as all of you realize, is an increasingly ominous menace to normal trading habits, as well as to the ordinary comfort and convenience of a city's people. A chamber of commerce is peculiarly well-fitted to make studies of the situation and suggest measures of relief.

"Very commendable, also, are the efforts—which, I understand, take the form of a competition between the several chambers of commerce throughout the country, to reduce the economic waste attendant upon fire losses, and, in a different field, to raise the level of public health in the various communities. Such work cannot be praised too highly."

Other functions which the Secretary of Commerce believes these community service organizations might well emphasize are: the effective dissemination and interpretation of statistics; development of a civic consciousness in surrounding territory considered as a single commercial area; and closer application to the problems of the merchant and manufacturer.

In closing, he assured the chamber of commerce representatives that the Department of Commerce aims "to supplement but never to supplant" chambers of commerce.

Master Construction Glass-Overs for Sludge Beds



Master Construction Glass-Over at Boonton, N. J.
Clyde Potts, C. E.; Weston Gavett, Eng., Abraham Slavin, Architect

The Boonton Glass-Over One of the Best Examples

THE whole Boonton operation as you know is acknowledged to be about the last word in Sewage Disposal.
Not the least of its features is the Sludge Bed Glass-Over.

Its the largest single-structure, one roof, glass-over ever built.

The one we furnished for the City of Marion, Ohio, does cover more ground.
But it is a group of 10 houses, connected as one.

The Boonton one is 80 ft. wide and 150 ft. long. All the construction principles of our Master Construction were used in it.

The frame is entirely of steel.
Every inch of the wood is highest-grade tank cypress, such as we use to the exclusion of all other woods and grades.

We have full particulars of both this and the Marion plant, which we would be glad to send you.

For over four generations we have specialized in structures of glass.

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Costs of City Government, 1927

From the Forthcoming Report of the Bureau of the Census, U. S. Department of Commerce, on "Financial Statistics of Cities Having a Population of Over 30,000: 1927"

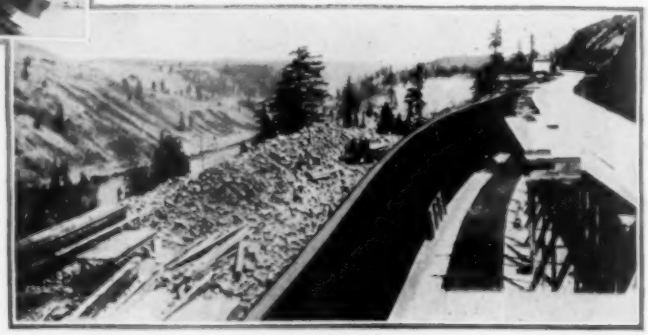
Similar figures for cities of from 30,000 to 50,000 were published in THE AMERICAN CITY *for December, 1928, and for cities of from 50,000 to 100,000 in November, 1928. The 1929 Municipal Index, to be published in March, will give group averages.*

GOVERNMENTAL COST PAYMENTS FOR EXPENSES OF MUNICIPAL DEPARTMENTS: 1927

Group I Cities of 500,000 and over	All General Departments	General Government	Protection to Person and Property	Conservation of Health	Sanitation	Highways	Charities, Hospitals, and Corrections	Schools	Libraries	Recreation	Miscellaneous
1 New York, N. Y.	$327,597,418	$34,844,325	$65,302,291	$5,558,255	$31,111,505	$24,484,232	$21,238,976	$111,232,803	$2,659,436	$6,880,386	$24,285,209
Per capita	54.87	5.84	10.94	0.93	5.21	4.10	3.56	18.63	0.45	1.15	4.07
Per cent. of total		10.6	19.9	1.7	9.5	7.5	6.5	34.0	0.8	2.1	7.4
2 Chicago, Ill.	140,762,521	15,357,566	26,414,917	4,329,418	15,580,764	11,123,646	6,372,369	43,819,656	1,520,384	3,673,635	7,570,166
Per capita	45.37	4.95	8.51	1.40	5.02	3.58	2.05	14.12	0.49	2.80	2.44
Per cent. of total		10.9	18.7	3.1	11.1	7.9	4.5	31.1	1.1	6.2	5.4
3 Philadelphia, Pa.	82,819,892	8,688,364	16,195,192	1,202,316	7,373,700	5,078,633	6,847,059	27,794,011	627,749	2,733,971	6,278,897
Per capita	40.68	4.27	7.95	0.59	3.62	2.49	3.36	13.65	0.31	1.34	3.08
Per cent. of total		10.5	19.5	1.5	8.9	6.2	8.3	33.6	0.8	3.3	7.6
4 Detroit, Mich.	66,247,943	4,835,949	13,386,844	2,240,610	5,048,337	9,207,706	5,796,636	19,568,050	969,829	2,500,997	2,692,985
Per capita	50.48	3.69	10.20	1.71	3.85	7.02	4.42	14.91	0.74	1.91	2.05
Per cent. of total		7.3	20.3	3.4	7.6	13.9	8.7	29.5	1.5	3.8	4.1
5 Cleveland, Ohio	41,687,841	3,724,292	6,560,563	1,815,892	2,871,434	5,008,665	1,868,092	15,870,304	1,336,405	686,529	1,945,665
Per capita	42.34	3.78	6.67	1.84	2.92	5.08	1.90	16.12	1.36	0.70	1.98
Per cent. of total		8.9	15.7	4.4	6.9	12.1	4.5	38.1	3.2	1.6	4.7
6 St. Louis, Mo.	31,663,368	2,930,902	8,780,246	870,073	1,330,395	2,654,642	2,741,959	9,913,467	453,076	1,583,487	405,121
Per capita	38.03	3.52	10.54	1.05	1.60	3.19	3.29	11.91	0.54	1.90	0.49
Per cent. of total		9.3	27.8	2.7	4.2	8.4	8.7	31.3	1.4	5.0	1.3
7 Baltimore, Md.	27,322,261	1,864,723	6,672,676	652,739	2,489,615	3,233,700	1,724,967	8,010,755	342,692	989,736	1,340,658
Per capita	33.36	2.28	8.15	0.80	3.04	3.95	2.11	9.78	0.42	1.21	1.64
Per cent. of total		6.8	24.5	2.4	9.1	11.8	6.3	29.3	1.3	3.6	4.9
8 Boston, Mass.	49,814,783	3,908,387	9,865,619	1,492,881	4,138,760	3,903,602	4,905,594	15,217,587	969,558	2,690,435	2,722,360
Per capita	62.81	4.93	12.44	1.88	5.22	4.92	6.19	19.19	1.22	3.39	3.43
Per cent. of total		7.8	19.9	3.0	8.3	7.9	9.8	30.5	1.9	5.4	5.5
9 Los Angeles, Calif.	58,881,391	6,270,733	12,151,416	1,404,624	1,904,255	5,905,339	4,586,430	22,964,536	981,157	1,652,170	1,060,731
Per capita	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Per cent. of total		10.6	20.6	2.4	3.2	10.1	7.8	39.0	1.7	2.8	1.8
10 Pittsburgh, Pa.	33,040,611	3,921,669	5,543,679	719,065	2,748,459	4,196,177	2,251,636	10,648,203	528,957	806,651	1,676,115
Per capita	49.65	5.89	8.33	1.08	4.13	6.30	3.38	16.00	0.79	1.21	2.52
Per cent. of total		11.9	16.8	2.2	8.3	12.7	6.8	32.2	1.6	2.4	5.1
11 San Francisco, Calif.	25,626,670	2,613,762	7,064,663	409,167	877,717	1,293,910	2,888,332	7,362,540	222,697	1,375,030	1,518,852
Per capita	44.85	4.57	12.37	0.72	1.54	2.26	5.05	12.89	0.39	2.41	2.66
Per cent. of total		10.2	27.5	1.6	3.4	5.0	11.3	28.7	0.9	5.4	5.9
12 Buffalo, N. Y.	31,742,180	2,391,264	5,425,846	1,052,921	2,295,147	3,265,693	3,160,253	10,149,549	321,789	1,610,600	2,069,118
Per capita	58.02	4.37	9.92	1.92	4.20	5.96	5.78	18.55	0.59	2.94	3.78
Per cent. of total		7.5	17.0	3.3	7.2	10.3	10.0	32.0	1.0	5.1	6.5
13 Washington, D. C.	25,818,007	1,348,691	5,663,173	382,246	1,923,055	2,772,612	3,061,597	8,140,208	236,161	1,323,282	966,982
Per capita	48.35	2.53	10.60	0.72	3.60	5.19	5.73	15.24	0.44	2.48	1.81
Per cent. of total		5.2	21.9	1.5	7.4	10.8	11.9	31.5	0.9	5.1	3.7
14 Milwaukee, Wis.	25,241,990	2,084,682	4,308,648	749,976	2,493,602	2,557,899	2,134,968	7,729,973	311,312	1,594,305	1,276,625
Per capita	47.53	3.93	8.12	1.41	4.70	4.81	4.02	14.55	0.59	3.00	2.40
Per cent. of total		8.3	17.1	3.0	9.9	10.2	8.5	30.6	1.2	6.3	5.1
Group II—Cities of 300,000 to 500,000											
15 Newark, N. J.	26,640,038	2,323,909	6,077,993	1,044,436	2,442,197	1,285,386	2,866,635	8,693,552	322,447	742,417	841,066
Per capita	57.08	4.98	13.02	2.24	5.23	2.76	6.14	18.63	0.69	1.59	1.80
Per cent. of total		8.7	22.8	3.9	9.2	4.9	10.8	32.6	1.2	2.8	3.2
16 Minneapolis, Minn.	18,022,110	1,401,132	2,721,973	953,245	751,637	1,918,514	939,900	7,274,987	438,559	793,203	828,960
Per capita	40.25	3.13	6.08	2.13	1.68	4.29	2.10	16.25	0.98	1.77	1.85
Per cent. of total		7.8	15.1	5.3	4.2	10.7	5.2	40.4	2.4	4.4	4.6
17 New Orleans, La.	12,062,437	1,369,232	3,006,353	252,011	1,240,526	1,132,255	532,906	3,844,215	73,064	338,844	273,031
Per capita	28.42	3.23	7.09	0.59	2.92	2.67	1.26	9.06	0.17	0.80	0.64
Per cent. of total		11.4	25.0	2.1	10.3	9.4	4.4	31.9	0.6	2.8	2.3
18 Cincinnati, Ohio	19,607,149	2,054,547	2,720,675	419,823	912,857	2,337,788	1,429,726	7,742,069	273,626	326,893	1,389,145
Per capita	47.57	4.98	6.60	1.02	2.21	5.67	3.47	18.78	0.66	0.79	3.37
Per cent. of total		10.5	13.9	2.1	4.7	11.9	7.3	39.5	1.4	1.7	7.1
19 Kansas City, Mo.	16,197,467	2,081,560	2,441,018	245,624	702,475	2,382,554	1,704,234	5,779,271	228,862	441,622	190,247
Per capita	42.90	5.51	6.47	0.65	1.86	6.31	4.51	15.31	0.61	1.17	0.50
Per cent. of total		12.9	15.1	1.5	4.3	14.7	10.5	35.7	1.4	2.7	1.2
20 Seattle, Wash.	14,820,722	1,718,776	3,344,211	450,692	1,022,213	1,572,050	581,839	5,027,606	280,102	383,132	460,101
Per capita	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Per cent. of total		11.6	22.6	3.0	6.8	10.6	3.9	33.9	1.9	2.6	3.1
21 Indianapolis, Ind.	13,360,816	1,231,508	2,876,645	414,101	711,070	934,690	861,700	5,002,638	311,416	608,000	409,048
Per capita	35.70	3.29	7.69	1.11	1.90	2.49	2.30	13.37	0.83	1.62	1.09
Per cent. of total		9.2	21.5	3.1	5.3	7.0	6.4	37.4	2.3	4.6	3.1
22 Rochester, N. Y.	18,214,705	1,518,071	2,926,083	807,114	1,629,557	1,533,847	948,386	6,700,253	209,082	739,766	1,202,546
Per capita	56.13	4.68	9.02	2.49	5.02	4.72	2.92	20.65	0.64	2.28	3.71
Per cent. of total		8.3	16.1	4.4	8.9	8.4	5.2	36.8	1.1	4.1	6.6
23 Jersey City, N. J.	18,277,771	2,130,206	4,859,477	643,631	1,080,855	1,167,241	2,096,308	4,708,408	216,139	530,197	845,309
Per capita	56.85	6.63	15.12	2.00	3.36	3.63	6.52	14.65	0.67	1.65	2.63
Per cent. of total		11.7	26.6	3.5	5.9	6.3	11.5	25.8	1.2	2.9	4.6
24 Louisville, Ky.	8,940,572	663,743	1,713,407	483,313	477,109	1,065,060	766,478	3,143,221	156,748	227,363	244,130
Per capita	28.19	2.09	5.40	1.52	1.50	3.36	2.42	9.91	0.49	0.72	0.77
Per cent. of total		7.4	19.1	5.4	5.3	11.9	8.6	35.2	1.8	2.5	2.7
25 Toledo, Ohio	12,217,759	1,230,844	2,412,840	133,806	475,166	2,153,794	661,260	4,271,685	216,056	181,027	481,281
Per capita	40.01	4.03	7.91	0.44	1.56	7.05	2.17	13.99	0.71	0.59	1.58
Per cent. of total		10.1	19.7	1.1	3.9	17.6	5.4	35.0	1.8	1.5	3.9
Group III—Cities of 100,000 to 300,000											
26 Akron, Ohio	5,856,737	326,479	815,987	94,404	376,037	807,850	113,636	2,954,458	47,524	22,336	298,026
Per capita	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Per cent. of total		5.6	14.0	1.6	6.4	13.8	1.9	50.4	0.8	0.4	5.1
27 Columbus, Ohio	8,195,880	428,367	1,675,579	109,135	740,359	621,967	69,420	3,935,597	65,441	125,654	424,361
Per capita	28.13	1.47	5.75	0.37	2.54	2.13	0.24	13.51	0.22	0.43	1.46
Per cent. of total		5.2	20.4	1.3	9.0	7.6	0.8	48.0	0.8	1.5	5.2
28 Portland, Ore.	9,297,649	422,234	2,466,077	134,995	471,542	665,525	53,709	4,463,390	.....	377,333	242,844
Per capita	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Per cent. of total		4.5	26.5	1.5	5.1	7.1	0.6	48.0	.....	4.1	2.6
29 Denver, Colo.	11,894,361	1,127,615	2,172,587	239,005	479,075	1,107,816	725,817	4,559,693	238,880	745,854	498,109
Per capita	41.04	3.89	7.50	0.82	1.65	3.82	2.50	15.73	0.82	2.57	1.72
Per cent. of total		9.5	18.2	2.0	4.0	9.3	6.1	38.3	2.0	6.3	4.2
30 Providence, R. I.	9,647,363	513,212	2,542,979	355,314	651,766	1,064,723	295,306	3,601,929	43,000	219,456	359,678
Per capita	34.57	1.84	9.11	1.27	2.34	3.82	1.06	12.91	0.15	0.79	1.29
Per cent. of total		5.3	26.3	3.7	6.8	11.1	3.1	37.3	0.4	2.3	3.7
31 Oakland, Calif.	9,815,603	567,025	2,311,500	174,592	460,993	728,980	18,831	4,869,484	156,213	417,631	110,354
Per capita	37.19	2.15	8.76	0.66	1.75	2.77	0.07	18.45	0.59	1.58	0.42
Per cent. of total		5.8	23.6	1.8	4.7	7.5	0.2	49.6	1.6	4.3	1.1

For notes, see end of table. Numbers at left of city names indicate rank in population

Vertical Concrete Walls in *Government Project*



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A million and a quarter square feet on the U. S. Reclamation Project, Ellensburg, Washington. Here, the Hunt Process is beating the best results of old fashioned curing methods. Eliminates costly covering and sprinkling after removal of forms. By preventing evaporation of mixing water, this improved method of cure makes the concrete actually stronger.

In curing walls, the Hunt Process is first applied to the top directly after pouring—then over the entire surface as soon as the forms are taken away. That's all! The cure needs no further attention. With the original moisture sealed in, crystallization takes place to the very surface.

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Used on more than 325 jobs throughout the United States and not a single instance of failure! These facts have been proved through exhaustive tests made by State, county and city engineers as well as other impartial investigators. Ask for our illustrated booklet . . . "Curing Concrete Without Dirt and Water by the Hunt Process". Contains valuable data, details of tests and other information.

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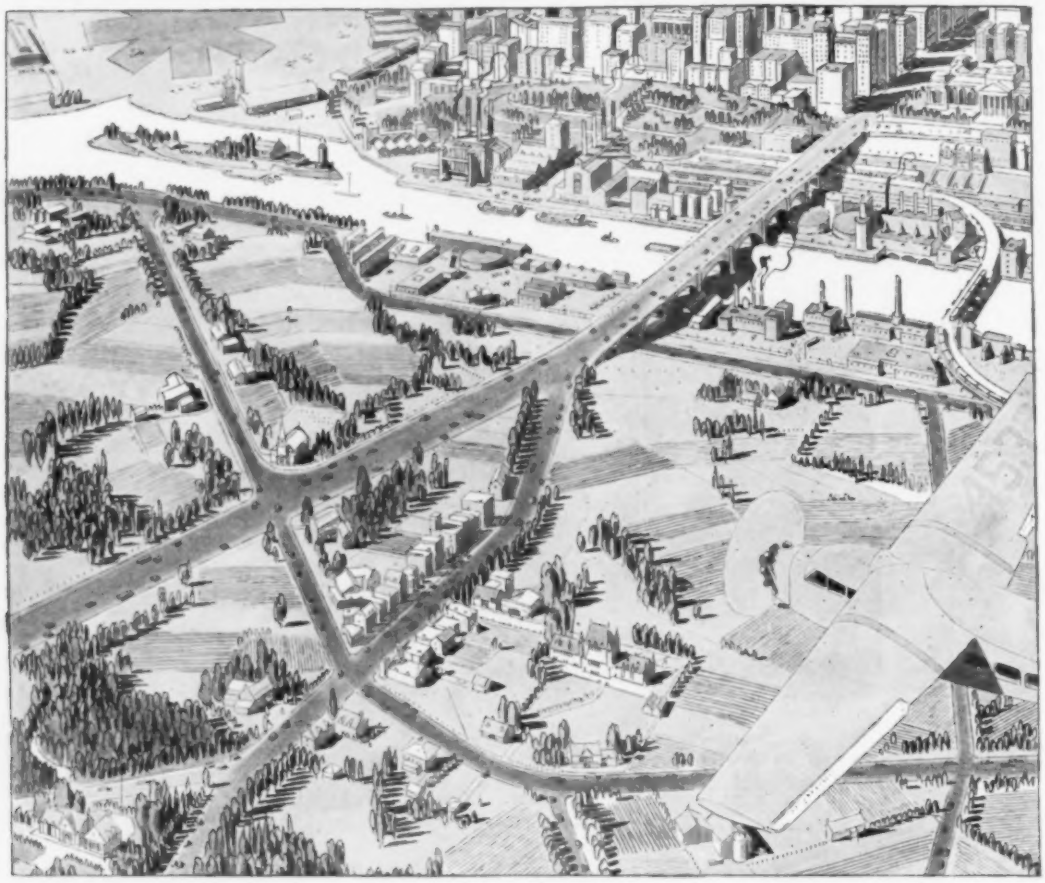
GOVERNMENTAL COST PAYMENTS FOR EXPENSES OF MUNICIPAL DEPARTMENTS: 1927

Group III Cities of 100,000 to 300,000	All General Departments	General Government	Protection to Person and Property	Conservation of Health	Sanitation	Highways	Charities, Hospitals, and Corrections	Schools	Libraries	Recreation	Miscellaneous
32 St. Paul, Minn.	$7,986,709	$510,988	$1,849,442	$137,498	$321,560	$725,424	$347,997	$3,249,963	$218,711	$346,717	$278,409
Per capita	31.93	2.04	7.40	0.55	1.29	2.90	1.39	12.99	0.87	1.39	1.11
Per cent. of total		6.4	23.2	1.7	4.0	9.1	4.4	40.7	2.7	4.3	3.5
33 Atlanta, Ga.	7,816,317	318,551	1,620,976	264,142	511,870	472,143	636,794	3,522,790	109,940	195,515	163,596
Per capita	31.39	1.28	6.51	1.06	2.06	1.90	2.56	14.15	0.44	0.79	0.66
Per cent. of total		4.1	20.8	3.4	6.5	6.0	8.1	45.1	1.4	2.5	2.1
34 Omaha, Neb.	6,402,742	394,337	1,668,378	97,575	226,517	387,498	20,507	3,112,485	89,437	170,571	235,437
Per capita	29.21	1.80	7.61	0.45	1.03	1.77	0.09	14.20	0.41	0.78	1.07
Per cent. of total		6.2	26.1	1.5	3.5	6.1	0.3	48.6	1.4	2.7	3.7
35 Birmingham, Ala.	5,007,484	269,767	1,257,556	100,734	316,402	420,112	76,972	2,244,334	108,399	142,823	70,395
Per capita	23.38	1.26	5.88	0.47	1.48	1.96	0.36	10.48	0.51	0.67	0.33
Per cent. of total		5.4	25.1	2.0	6.3	8.4	1.5	44.8	2.2	2.9	1.4
36 San Antonio, Tex.	4,494,145	229,592	978,432	69,607	399,202	629,709	85,043	1,808,528	32,745	185,928	75,359
Per capita	21.66	1.11	4.71	0.34	1.92	3.04	0.41	8.72	0.16	0.90	0.36
Per cent. of total		5.1	21.8	1.5	8.9	14.1	1.9	40.2	0.7	4.1	1.7
37 Dallas, Tex.	5,790,674	305,475	1,228,419	131,528	471,726	633,244	293,151	2,376,697	29,126	249,598	71,710
Per capita	28.27	1.49	6.00	0.64	2.30	3.09	1.43	11.60	0.14	1.22	0.35
Per cent. of total		5.3	21.3	2.3	8.1	11.0	5.1	41.0	0.5	4.3	1.2
38 Syracuse, N. Y.	8,707,489	530,698	1,637,592	229,705	666,400	1,262,699	596,875	2,911,918	111,670	214,221	545,711
Per capita	44.20	2.69	8.31	1.17	3.38	6.41	3.03	14.78	0.57	1.09	2.77
Per cent. of total		6.1	18.7	2.6	7.7	14.5	6.9	33.4	1.3	2.5	6.3
39 Houston, Tex.	6,205,415	350,025	1,169,395	182,327	586,787	594,510	233,058	2,695,605	56,874	217,078	119,756
Per capita	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Per cent. of total		5.6	18.9	2.9	9.5	9.6	3.8	43.4	0.9	3.5	1.9
40 Worcester, Mass.	9,387,722	379,577	1,913,162	297,799	545,986	979,383	1,087,762	3,488,081	157,506	201,103	337,363
Per capita	48.07	1.94	9.79	1.52	2.80	5.02	5.57	17.86	0.81	1.03	1.73
Per cent. of total		4.0	20.4	3.2	5.8	10.5	11.6	37.2	1.7	2.1	3.6
41 Richmond, Va.	5,433,524	524,277	1,210,074	175,168	389,285	517,312	256,364	2,039,866	55,981	130,032	135,165
Per capita	28.30	2.73	6.30	0.91	2.03	2.69	1.34	10.62	0.29	0.68	0.70
Per cent. of total		9.6	22.2	3.2	7.2	9.5	4.7	37.5	1.0	2.4	2.5
42 New Haven, Conn.	6,501,000	380,275	1,623,232	145,616	278,684	460,355	267,950	2,763,773	91,002	260,372	229,741
Per capita	35.16	2.06	8.78	0.79	1.51	2.49	1.45	14.95	0.49	1.41	1.24
Per cent. of total		5.8	25.0	2.2	4.3	7.1	4.1	42.5	1.4	4.0	3.5
43 Dayton, Ohio.	5,405,762	342,472	918,289	88,145	334,897	492,691	265,425	2,428,699	167,037	162,888	205,219
Per capita	29.92	1.90	5.08	0.49	1.85	2.73	1.47	13.44	0.92	0.90	1.14
Per cent. of total		6.3	17.0	1.6	6.2	9.2	4.9	44.9	3.1	3.0	3.8
44 Norfolk, Va.	4,093,953	342,053	1,273,390	54,855	394,812	214,362	175,168	1,401,809	33,828	78,243	125,433
Per capita	22.85	1.91	7.10	0.31	2.20	1.19	0.98	7.82	0.19	0.44	0.70
Per cent. of total		8.4	31.1	1.3	9.6	5.2	4.3	34.2	0.8	1.9	3.1
45 Memphis, Tenn.	5,182,210	247,268	1,161,579	187,277	496,745	476,263	461,664	1,688,324	69,798	352,038	41,254
Per capita	28.97	1.38	6.49	1.05	2.78	2.67	2.58	9.44	0.39	1.97	0.23
Per cent. of total		4.8	22.4	3.6	9.6	9.1	8.9	32.6	1.3	6.8	0.8
46 Bridgeport, Conn.	5,950,459	453,835	1,648,337	167,570	410,133	368,735	328,203	2,031,947	120,673	190,133	230,893
Per capita	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Per cent. of total		7.6	27.8	2.8	6.9	6.2	5.5	34.1	2.0	3.2	3.9
47 Youngstown, Ohio.	4,343,310	253,737	613,101	54,628	162,959	517,871	83,602	2,254,323	102,300	174,990	125,799
Per capita	25.64	1.50	3.63	0.32	0.96	3.06	0.49	13.31	0.60	1.03	0.74
Per cent. of total		5.8	14.1	1.3	3.8	11.9	1.9	51.9	2.4	4.0	2.9
48 Hartford, Conn.	7,186,824	414,630	1,583,127	204,542	598,762	534,000	261,816	2,976,843	59,000	359,220	194,884
Per capita	43.50	2.51	9.58	1.24	3.62	3.23	1.58	18.02	0.36	2.17	1.18
Per cent. of total		5.8	22.0	2.8	8.3	7.4	3.6	41.4	0.8	5.0	2.7
49 Fort Worth, Tex.	3,459,737	239,386	800,862	72,242	222,442	233,774	119,709	1,537,138	24,754	191,168	18,262
Per capita	21.29	1.47	4.93	0.44	1.37	1.44	0.74	9.46	0.15	1.18	0.11
Per cent. of total		6.9	23.1	2.1	6.4	6.8	3.5	44.4	0.7	5.5	0.5
50 Grand Rapids, Mich.	5,677,824	309,872	1,077,508	287,056	230,410	227,449	114,347	3,018,880	140,177	201,786	70,339
Per capita	36.19	1.97	6.86	1.83	1.47	1.45	0.73	19.24	0.89	1.29	0.45
Per cent. of total		5.5	19.0	5.1	4.1	4.0	2.0	53.2	2.5	3.6	1.2
51 Springfield, Mass.	7,661,288	387,019	1,494,777	170,010	646,562	813,267	246,070	3,159,691	183,120	340,677	220,095
Per capita	52.05	2.63	10.15	1.15	4.39	5.52	1.67	21.47	1.24	2.31	1.50
Per cent. of total		5.1	19.5	2.2	8.4	10.7	3.2	41.2	2.4	4.4	2.9
52 Des Moines, Iowa	4,844,918	224,268	838,858	30,449	293,508	456,718	7,798	2,663,764	104,699	126,100	98,756
Per capita	33.03	1.53	5.72	0.21	2.00	3.12	0.05	18.16	0.71	0.86	0.67
Per cent. of total		4.6	17.3	0.6	6.1	9.4	0.2	55.0	2.2	2.6	2.0
53 Tulsa, Okla.	3,013,176	153,000	522,209	41,945	120,289	136,608	7,145	1,870,238	42,493	99,905	19,344
Per capita	20.67	1.05	3.58	0.29	0.83	0.94	0.05	12.83	0.29	0.69	0.13
Per cent. of total		5.1	17.4	1.4	4.0	4.5	0.2	62.1	1.4	3.3	0.6
54 Scranton, Pa.	4,466,662	243,525	898,421	74,731	331,445	456,732	.....	2,064,521	31,802	138,382	227,103
Per capita	31.04	1.69	6.24	0.52	2.30	3.17	.....	14.35	0.22	0.96	1.58
Per cent. of total		5.5	20.1	1.7	7.4	10.3	.....	46.2	0.7	3.1	5.1
55 Paterson, N. J.	5,751,581	205,430	1,324,742	172,268	542,652	235,401	167,467	2,632,254	84,005	145,300	242,062
Per capita	40.00	1.43	9.21	1.20	3.77	1.63	1.16	18.30	0.58	1.01	1.68
Per cent. of total		3.6	23.1	3.0	9.4	4.1	2.9	45.8	1.5	2.5	4.2
56 Jacksonville, Fla.	3,717,149	226,712	918,963	95,540	411,699	529,322	77,904	1,073,912	44,301	212,091	126,705
Per capita	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Per cent. of total		6.1	24.7	2.6	11.1	14.2	2.1	28.9	1.2	5.7	3.4
57 Nashville, Tenn.	3,003,296	212,751	775,886	76,162	235,499	295,414	251,287	525,406	36,927	133,269	60,695
Per capita	21.79	1.54	5.63	0.55	1.71	2.15	1.82	6.72	0.27	0.97	0.44
Per cent. of total		7.1	25.8	2.5	7.8	9.8	8.4	30.8	1.2	4.4	2.0
58 Flint, Mich.	3,875,605	177,686	706,971	85,722	341,726	241,435	340,261	1,725,745	52,464	171,069	32,526
Per capita	28.19	1.29	5.14	0.62	2.49	1.76	2.47	12.55	0.38	1.24	0.24
Per cent. of total		4.6	18.3	2.2	8.8	6.2	8.8	44.5	1.4	4.4	0.8
59 Trenton, N. J.	5,231,818	240,454	1,152,837	229,031	368,341	482,562	117,574	2,255,245	86,727	155,028	144,019
Per capita	38.27	1.76	8.43	1.68	2.69	3.53	0.86	16.50	0.63	1.13	1.05
Per cent. of total		4.6	22.0	4.4	7.0	9.20	2.2	43.1	1.7	3.0	2.8
60 Salt Lake City, Utah.	3,842,219	249,668	499,860	77,800	158,202	364,739	44,966	2,145,057	63,732	190,792	47,373
Per capita	28.31	1.84	3.69	0.57	1.17	2.68	0.33	15.81	0.47	1.41	0.35
Per cent. of total		6.5	12.9	2.0	4.1	9.5	1.2	55.8	1.7	5.0	1.2
61 Camden, N. J.	4,324,185	266,235	1,036,274	108,056	290,062	347,823	91,042	1,800,690	40,953	117,995	225,035
Per capita	32.49	2.00	7.79	0.81	2.18	2.62	0.68	13.53	0.31	0.89	1.69
Per cent. of total		6.2	24.0	2.5	6.7	8.1	2.1	41.6	0.9	2.7	5.2
62 Fall River, Mass.	5,403,503	243,345	995,454	287,104	232,255	570,161	574,710	2,094,599	78,117	127,307	200,451
Per capita	40.75	1.84	7.50	2.17	1.75	4.30	4.33	15.80	0.59	0.96	1.51
Per cent. of total		4.5	18.4	5.3	4.3	10.6	10.6	38.8	1.4	2.4	3.7
63 Miami, Fla.	7,177,282	296,795	1,422,073	120,155	839,820	700,858	1,007,301	2,041,505	30,000	146,467	572,308
Per capita	54.50	2.25	10.80	0.91	6.38	5.32	7.65	15.50	0.23	1.11	4.35
Per cent. of total		4.1	19.8	1.7	11.7	9.8	14.0	28.4	0.4	2.0	8.0
64 Wilmington, Del.	2,866,498	210,487	677,092	26,020	275,753	218,574	6,987	1,234,361	45,836	102,303	69,091
Per capita	22.88	1.68	5.41	0.21	2.20	1.74	0.06	9.85	0.37	0.82	0.55
Per cent. of total		7.3	23.7	0.9	9.6	7.6	0.2	43.1	1.6	3.6	2.4
65 Erie, Pa.	3,016,578	206,535	548,699	71,211	149,498	284,980	500	1,580,341	43,114	26,336	105,364
Per capita	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Per cent. of total		6.8	18.1	2.4	5.0	9.4	(2)	52.4	1.4	0.9	3.5
66 Cambridge, Mass.	5,228,345	276,723	980,560	149,981	626,345	541,572	372,241	1,619,868	75,908	259,516	325,631
Per capita	42.68	2.26	8.00	1.22	5.11	4.42	3.04	13.22	0.62	2.12	2.66
Per cent. of total		5.3	18.8	2.9	12.0	10.4	7.1	31.0	1.5	5.0	6.2
67 New Bedford, Mass.	5,151,769	263,177	1,135,036	249,782	400,242	400,540	364,290	1,909,577	78,409	134,126	216,590
Per capita	43.10	2.20	9.49	2.09	3.35	3.35	3.05	15.97	0.66	1.12	1.81
Per cent. of total		5.1	22.0	4.8	7.8	7.8	7.1	37.1	1.5	2.6	4.2
68 Albany, N. Y.	4,755,696	329,577	1,049,052	185,950	450,669	448,863	318,384	1,433,293	84,996	218,521	236,391
Per capita	39.80	2.76	8.78	1.56	3.77	3.76	2.66	11.99	0.71	1.83	1.98
Per cent. of total		6.9	22.1	3.9	9.5	9.4	6.7	30.1	1.8	4.6	5.0
69 Yonkers, N. Y.	6,865,573	423,511	1,230,805	288,304	666,202	453,038	428,663	2,808,720	40,508	162,955	362,867
Per capita	57.79	3.56	10.36	2.43	5.61	3.81	3.61	23.64	0.34	1.37	3.06
Per cent. of total		6.2	17.9	4.2	9.7	6.6	6.2	40.9	0.6	2.4	5.3

For notes, see end of table. Numbers at left of city names indicate rank in population

THE BUSIER FUTURE



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Detroit	Cleveland	Birmingham
Buffalo	Kansas City	Columbus
Providence	Syracuse	Milwaukee
Baltimore	Toledo	Cincinnati
Lebanon	Youngstown	Rochester
		Bethlehem

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Why not remember to mention THE AMERICAN CITY?

GOVERNMENTAL COST PAYMENTS FOR EXPENSES OF MUNICIPAL DEPARTMENTS: 1927

Group III Cities of 100,000 to 300,000	All General Departments	General Government	Protection to Person and Property	Conservation of Health	Sanitation	Highways	Charities, Hospitals, and Corrections	Schools	Libraries	Recreation	Miscellaneous
70 Kansas City, Kans.	$2,840,412	$145,074	$606,632	$39,303	$99,309	$196,226	$27,819	$1,600,908	$27,612	$58,295	$39,234
Per capita	24.17	1.23	5.16	0.34	0.85	1.67	0.24	13.62	0.23	0.50	0.33
Per cent. of total		5.1	21.4	1.4	3.5	6.9	1.0	56.4	1.0	2.1	1.4
71 San Diego, Calif.	4,552,414	354,478	766,760	96,677	310,314	448,674	19,631	2,079,272	91,629	305,457	79,522
Per capita	39.48	3.07	6.65	0.84	2.69	3.89	0.17	18.03	0.79	2.65	0.69
Per cent. of total		7.8	16.8	2.1	6.8	9.9	0.4	45.7	2.0	6.7	1.7
72 Duluth, Minn.	3,711,006	266,359	702,464	73,619	104,801	312,920	33,300	1,387,593	66,356	141,024	122,570
Per capita	32.35	2.32	6.13	0.64	0.91	2.73	0.29	16.46	0.58	1.23	1.07
Per cent. of total		7.2	18.9	2.0	2.8	8.4	0.9	50.9	1.8	3.8	3.3
73 Reading, Pa.	3,007,923	178,152	426,281	64,276	243,226	420,465	270	1,398,231	41,892	111,375	123,755
Per capita	26.27	1.56	3.73	0.56	2.12	3.67	(3)	12.21	0.37	0.97	1.08
Per cent. of total		5.9	14.2	2.1	8.1	14.0	(2)	46.5	1.4	3.7	4.1
74 Canton, Ohio	2,865,326	191,305	399,776	57,519	163,815	451,806	32,656	1,422,785	16,445	28,138	101,081
Per capita	25.29	1.69	3.53	0.51	1.45	3.99	0.29	12.56	0.15	0.25	0.89
Per cent. of total		6.7	13.9	2.0	5.7	15.8	1.1	49.7	0.6	1.0	3.5
75 Elizabeth, N. J.	3,594,432	180,019	894,249	84,748	256,704	269,473	83,376	1,611,748	48,847	52,932	112,336
Per capita	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Per cent. of total		5.0	24.9	2.4	7.1	7.5	2.3	44.8	1.4	1.5	3.1
76 Oklahoma City, Okla.	3,013,168	154,863	533,936	47,160	168,086	174,788	41,738	1,753,525	37,432	72,994	28,646
Per capita	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Per cent. of total		5.1	17.7	1.6	5.6	5.8	1.4	58.2	1.2	2.4	1.0
77 Lowell, Mass.	4,062,544	225,341	860,925	160,576	239,112	402,467	315,097	1,492,425	33,781	59,372	273,448
Per capita	36.83	2.04	7.81	1.46	2.17	3.65	2.86	13.53	0.31	0.54	2.48
Per cent. of total		5.5	21.2	4.0	5.9	9.9	7.8	36.7	0.8	1.5	6.7
78 El Paso, Tex.	2,056,714	106,552	409,557	74,153	148,852	105,065	57,717	1,028,986	27,266	92,626	5,940
Per capita	18.70	0.97	3.72	0.67	1.35	0.96	0.52	9.35	0.25	0.84	0.05
Per cent. of total		5.2	19.9	3.6	7.2	5.1	2.8	50.0	1.3	4.5	0.3
79 Spokane, Wash.	3,455,652	152,863	619,532	68,522	210,386	298,110	35,440	1,797,839	71,010	132,341	69,609
Per capita	31.70	1.40	5.68	0.63	1.93	2.74	0.33	16.49	0.65	1.21	0.64
Per cent. of total		4.4	17.9	2.0	6.1	8.6	1.0	52.0	2.1	3.8	2.0
80 Tacoma, Wash.	3,181,145	216,774	686,415	66,965	111,042	333,198	39,473	1,493,103	53,196	132,586	48,393
Per capita	29.67	2.02	6.40	0.62	1.04	3.11	0.37	13.93	0.50	1.24	0.45
Per cent. of total		6.8	21.6	2.1	3.5	10.4	1.2	46.9	1.7	4.2	1.5
81 Waterbury, Conn.	4,263,251	267,743	885,252	78,889	296,136	574,937	163,737	1,705,329	45,226	106,122	139,880
Per capita	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Per cent. of total		6.3	20.8	1.9	6.9	13.5	3.8	40.0	1.1	2.5	3.3
82 Lynn, Mass.	3,622,861	163,111	744,760	129,272	245,314	358,138	163,584	1,367,915	73,607	154,954	222,206
Per capita	34.57	1.56	7.10	1.23	2.34	3.41	1.56	13.05	0.70	1.48	2.12
Per cent. of total		4.5	20.6	3.6	6.8	9.9	4.5	37.8	2.0	4.3	6.1
83 Tampa, Fla.	3,457,980	203,864	740,389	92,098	453,790	330,343	213,250	987,927	61,638	260,734	113,947
Per capita	33.09	1.95	7.08	0.88	4.34	3.17	2.04	9.45	0.59	2.50	1.09
Per cent. of total		5.9	21.5	2.7	13.1	9.6	6.2	28.6	1.8	7.5	3.3
84 Utica, N. Y.	3,585,871	232,405	708,837	67,840	346,463	234,343	194,801	1,423,905	81,912	102,607	192,758
Per capita	34.68	2.25	6.85	0.66	3.35	2.27	1.88	13.77	0.79	0.99	1.86
Per cent. of total		6.5	19.8	1.9	9.7	6.5	5.4	39.7	2.3	2.9	5.4
85 Fort Wayne, Ind.	2,770,164	73,614	608,751	29,916	130,994	174,203	.....	1,491,332	98,400	87,175	75,779
Per capita	26.87	0.71	5.90	0.29	1.27	1.69	.....	14.46	0.95	0.85	0.74
Per cent. of total		2.7	22.1	1.1	4.7	6.3	.....	53.8	3.6	3.1	2.7
86 Somerville, Mass.	3,119,715	148,381	622,379	80,029	314,186	249,167	122,449	1,199,488	67,755	119,119	196,762
Per capita	30.71	1.46	6.12	0.79	3.09	2.46	1.21	11.81	0.67	1.17	1.94
Per cent. of total		4.8	20.0	2.6	10.1	8.0	3.9	38.4	2.2	3.8	6.3
87 Knoxville, Tenn.	2,494,018	223,244	479,063	91,182	121,512	300,254	229,364	869,898	39,727	11,159	128,615
Per capita	24.64	2.21	4.72	0.90	1.20	2.96	2.27	8.60	0.39	0.11	1.27
Per cent. of total		9.0	19.3	3.7	4.9	12.0	9.2	34.9	1.6	0.4	5.2
88 Long Beach, Calif.	5,040,635	358,398	845,976	70,653	355,760	418,943	37,677	2,454,585	107,627	289,652	101,364
Per capita	49.91	3.55	8.38	0.70	3.52	4.14	0.37	24.30	1.07	2.87	1.00
Per cent. of total		7.1	16.8	1.4	7.1	8.3	0.7	48.7	2.1	5.7	2.0

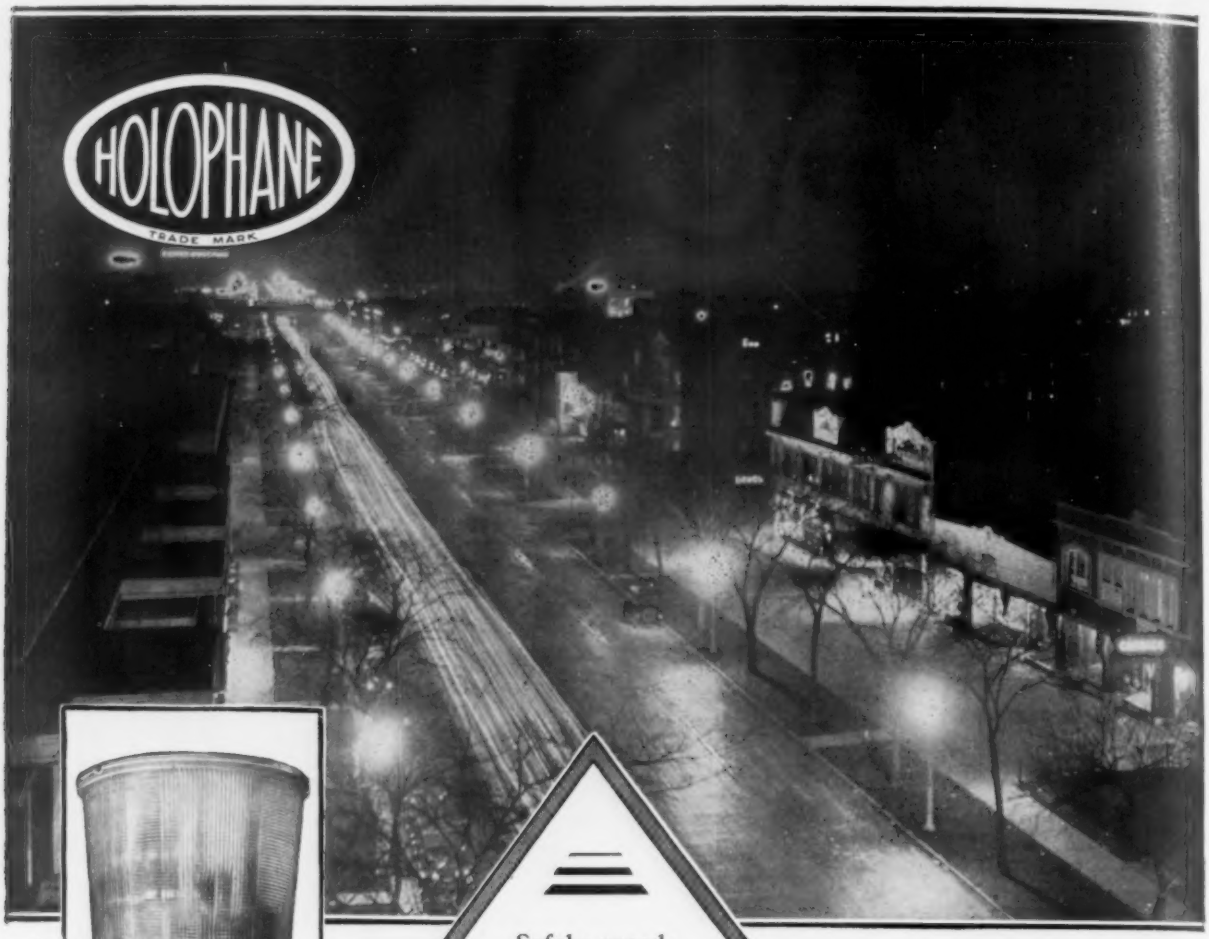
(1) Per capita not computed; population not estimated. (2) Less than one-twentieth of 1 per cent. (3) Less than one-half of 1 cent.

Net Debt, Per Capita Valuation, Tax Levies and Estimated Population

Groups I, II and III Cities of Over 100,000	Net Debt Total	Net Debt Per Capita	Per Capita Assessed Valuation for City Govt.	Per Capita Levy for All Purposes	Per Capita Levy for Govt. of City	Estimated Population[4]
New York, N. Y.	$1,394,476,388	$233.55	$2,638.56	$67.33	$65.22	5,970,800
Chicago, Ill.	241,700,338	77.90	1,369.87	66.45	62.34	3,102,800
Philadelphia, Pa.	381,583,043	187.43	2,188.00	48.24	48.24	2,035,900
Detroit, Mich.	214,224,380	163.24	2,586.55	72.63	65.35	1,312,300
Cleveland, Ohio	134,272,858	136.39	2,125.10	53.13	51.32	984,500
St. Louis, Mo.	34,387,808	41.30	1,541.18	37.79	35.94	832,600
Baltimore, Md.	125,341,493	153.04	2,095.29	39.70	35.34	819,000
Boston, Mass.	100,625,500	126.88	2,440.57	73.22	69.33	793,100
Los Angeles, Calif.	203,403,399	(1)	(1)	(1)	(1)	(1)
Pittsburgh, Pa.	116,469,566	175.01	1,666.18	65.83	65.83	665,500
San Francisco, Calif.	81,714,101	143.01	1,324.17	48.46	48.46	571,400
Buffalo, N. Y.	78,185,072	142.91	1,896.81	65.23	62.92	547,100
Washington, D. C.	.....	.....	2,853.16	39.85	39.85	534,000
Milwaukee, Wis.	50,818,766	95.69	1,813.83	52.19	50.89	531,100
Newark, N. J.	83,252,340	178.39	1,760.96	66.87	58.92	466,700
Minneapolis, Minn.	52,920,784	118.21	953.45	52.72	47.22	447,700
New Orleans, La.	49,205,377	115.94	1,215.89	45.95	37.73	424,400
Cincinnati, Ohio	82,093,865	199.16	2,574.01	63.32	61.13	412,200
Kansas City, Mo.	43,430,313	115.02	1,326.48	45.09	43.11	377,600
Seattle, Wash.	74,714,341	(1)	(1)	(1)	(1)	(1)
Indianapolis, Ind.	31,302,599	83.63	1,780.55	47.72	43.27	374,300
Rochester, N. Y.	42,094,269	129.72	1,608.22	55.19	52.92	324,500
Jersey City, N. J.	66,547,144	206.99	1,911.04	68.30	59.37	321,500
Louisville, Ky.	21,171,244	66.77	1,357.04	39.87	31.03	317,100
Toledo, Ohio	32,965,611	107.94	1,913.96	49.76	48.14	305,400
Akron, Ohio	37,758,761	(1)	(1)	(1)	(1)	(1)
Columbus, Ohio	27,220,022	93.41	2,039.54	44.46	34.59	291,400
Portland, Ore.	43,967,358	(1)	(1)	(1)	(1)	(1)
Denver, Colo.	32,087,418	110.72	1,518.70	49.97	44.13	289,800
Providence, R. I.	27,004,652	96.76	2,258.48	42.98	40.27	279,100
Oakland, Calif.	26,751,291	101.37	929.04	52.81	36.63	263,900
St. Paul, Minn.	27,343,111	109.33	1,071.64	52.23	34.44	250,100
Atlanta, Ga.	12,199,050	48.99	1,536.14	41.54	23.04	249,000
Omaha, Nebr.	33,230,939	151.60	1,561.69	50.02	38.02	219,200
Birmingham, Ala.	15,216,551	71.04	978.06	35.21	17.61	214,200
San Antonio, Tex.	23,384,530	112.70	982.64	34.78	26.82	207,500
Dallas, Tex.	21,119,240	103.12	1,175.90	41.74	29.04	204,800
Syracuse, N. Y.	24,248,253	123.09	1,534.65	52.27	41.74	197,000
Houston, Tex.	35,744,411	(1)	(1)	(1)	(1)	(1)
Worcester, Mass.	8,502,863	43.54	1,738.62	50.77	45.72	195,300
Richmond, Va.	26,622,575	138.66	1,349.49	36.76	31.38	192,000
New Haven, Conn.	10,359,959	56.03	1,707.62	40.98	39.40	184,900
Dayton, Ohio	18,955,120	104.90	1,912.98	47.84	37.70	180,700
Norfolk, Va.	32,968,640	183.98	981.13	31.06	28.66	179,200
Memphis, Tenn.	25,461,519	142.32	1,378.46	48.30	31.02	178,900

Groups I, II and III Cities of Over 100,000	Net Debt Total	Net Debt Per Capita	Per Capita Assessed Valuation for City Govt.	Per Capita Levy for All Purposes	Per Capita Levy for Govt. of City	Estimated Population[4]
Bridgeport, Conn.	13,376,000	(1)	(1)	(1)	(1)	(1)
Youngstown, Ohio	$9,641,331	$56.91	$2,152.71	$44.74	$35.55	169,400
Hartford, Conn.	16,075,742	97.31	2,050.78	44.84	42.81	165,200
Ft. Worth, Texas	19,803,430	121.87	1,015.01	39.70	26.49	162,500
Grand Rapids, Mich.	12,830,133	81.77	1,626.99	50.14	40.43	156,900
Springfield, Mass.	14,859,846	100.95	2,134.18	58.90	52.96	147,200
Des Moines, Iowa	18,309,644	124.81	544.63	51.93	40.16	146,700
Tulsa, Okla.	14,851,902	101.86	768.28	35.75	28.48	145,800
Scranton, Pa.	7,374,679	51.25	876.90	39.32	32.12	143,900
Paterson, N. J.	17,075,963	118.75	1,394.05	51.78	39.35	143,800
Jacksonville, Fla.	14,938,775	(1)	(1)	(1)	(1)	(1)
Nashville, Tenn.	14,830,580	107.62	1,199.09	37.94	23.98	137,800
Flint, Mich.	18,076,294	131.46	1,193.96	46.91	36.61	137,500
Trenton, N. J.	12,778,089	93.48	1,521.72	51.94	37.65	136,700
Salt Lake City, Utah	9,033,834	66.57	1,430.70	46.93	29.62	135,700
Camden, N. J.	11,112,630	83.49	1,411.53	42.14	28.51	133,100
Fall River, Mass.	9,892,593	74.60	1,424.85	50.73	45.77	132,600
Miami, Fla.	26,539,053	201.51	2,960.16	97.48	67.37	131,700
Wilmington, Del.	10,555,200	84.24	1,035.53	29.55	19.99	125,300
Erie, Pa.	8,084,507	(1)	(1)	(1)	(1)	(1)
Cambridge, Mass.	6,239,593	50.94	1,417.16	47.19	42.56	122,500
New Bedford, Mass.	12,283,315	102.76	1,808.60	49.92	43.87	(2) 119,539
Albany, N. Y.	16,401,699	137.25	1,752.12	58.87	50.15	119,500
Yonkers, N. Y.	20,154,827	169.65	2,358.75	70.82	61.24	118,800
Kansas City, Kans.	12,809,977	109.53	1,182.90	44.34	35.82	117,500
San Diego, Calif.	16,166,408	140.21	(3)	(3)	(3)	115,300
Duluth, Minn.	12,342,294	107.61	1,165.89	58.10	43.98	114,700
Reading, Pa.	9,814,168	85.71	1,434.66	37.31	31.56	114,500
Canton, Ohio	12,190,791	107.60	1,990.34	45.21	37.20	113,300
Elizabeth, N. J.	4,873,210	(1)	(1)	(1)	(1)	(1)
Oklahoma City, Okla.	11,717,879	(1)	(1)	(1)	(1)	(1)
Lowell, Mass.	5,190,230	47.06	1,285.26	38.55	33.51	(2) 110,296
El Paso, Texas	6,515,234	59.23	919.33	29.51	17.97	110,000
Spokane, Wash.	5,132,392	47.09	795.74	46.03	26.69	109,000
Tacoma, Wash.	11,028,128	102.87	613.59	46.46	25.19	107,200
Waterbury, Conn.	14,794,084	(1)	(1)	(1)	(1)	(1)
Lynn, Mass.	6,221,370	59.36	1,267.03	36.74	32.54	104,800
Tampa, Fla.	15,034,181	143.87	1,279.32	54.10	39.56	104,500
Utica, N. Y.	8,276,764	80.05	1,271.59	42.70	34.34	103,400
Fort Wayne, Ind.	4,706,148	45.65	2,275.98	47.80	34.53	103,100
Somerville, Mass.	2,311,000	22.75	1,145.74	32.77	29.27	101,600
Knoxville, Tenn.	16,465,535	162.70	1,627.46	41.57	27.67	101,200
Long Beach, Calif.	16,777,712	166.12	1,671.86	66.84	46.77	101,000

(1) Per capita not computed; population not estimated. (2) Population state census, 1925. (3) Data not yet available. (4) Population as of July 1, 1927.



The illustration at the left shows the Holophane BI-LUX refractor which is one of the many different types in the Holophane line. This refractor is a Holophane specific for increasing the effectiveness and efficiency of ornamental street lighting.

PLANNED LIGHTING

Safely speeding traffic—convenience to motorist and pedestrian — a bright, cheerful and beautiful street — these come with good street lighting.

But good street lighting must be planned street lighting. Unless carefully planned the result will be unsatisfactory, the cost will be unnecessarily high.

Planned street lighting uses Holophane refractors—the light-directors produced by Holophane for outdoor service. They control the light of the Mazda lamp, convert it into illumination and enhance visibility. Their cost is extremely low in comparison with the results which they give. Maintenance is simple and inexpensive because they are sturdy, easily cleaned units, built specifically for outdoor service.

For further details and for expert advice on Planned Street Lighting consult the Holophane Street Lighting Department or the Street Lighting Engineers of the General Electric Company, the Westinghouse Company or the Line Material Company. These companies supply Holophane refractors as standard equipment in their street lighting units.

HOLOPHANE

NEW YORK • SAN FRANCISCO • CHICAGO • MILWAUKEE • TORONTO

THE MONTH IN PUBLIC HEALTH

Conducted by JAMES A. TOBEY, Dr. P. H.

Influenza

For several months influenza has been unduly prevalent in the West and it will probably make its way east, if it has not already done so by the time these notes appear in print. Although many warnings against influenza have been issued by competent authorities, such as health officials, and by some persons whose interest is less impartial, such as the vendors of various patent medicines, there is no reason why there should be any public hysteria over the situation.

Influenza is always present, or endemic, to a certain extent, becoming epidemic only at intervals. The disease seems now to have reached epidemic proportions in the United States, but fortunately it is much milder in type than in 1918, when the whole world was swept by a terrific pandemic of influenza. Since that time scientists have been studying the disease. They have not yet found out its cause, but they do know its symptoms and treatment and have some well-founded theories about its spread. A summary of these facts will be appropriate at this time.

The symptoms of influenza vary, but the chief characteristic is usually severe prostration. With it go aches of body and limbs, some fever, a chill, headache, and possibly cough and catarrhal symtoms. The so-called "grippe" is the same as influenza, though this name is usually given to the milder form. It will be observed that "flu" symptoms are in general quite different from those of the common colds, about which we wrote in the December number.

The nature of its spread indicates that influenza is a highly contagious disease, though the germ causing it has yet to be discovered. As in the case of any communicable disease, the first precaution is to avoid contact with those suffering from the disease, and the next is to take care to avoid use of articles which may have been freshly contaminated with nose and throat secretions of persons having influenza. Such articles include handkerchiefs, toys, towels, cups, dishes and eating utensils, and hands. A good rule for continuous application is to wash the hands thoroughly before eating.

Influenza itself seldom causes death, and the mortality associated with some of the epidemics in the past has been due chiefly to complications following the disease, particularly pneumonia. In order to prevent this affliction or to be able to cope with it when it occurs, the vital resistance of the individual should be maintained in the most effective manner. This is accomplished by attention to proper personal hygiene, such as good nutrition; adequate rest, recreation, and work; exercise; fresh air and sunlight; serenity of mind; regular evacuations; and avoidance of bodily poisons. The National Health Council, 370 Seventh Avenue, New York, has an excellent little book on personal hygiene by Dr. A. J. McLaughlin, which is sold at a very moderate cost.

Eleven rules for the prevention of influenza have recently been issued by the United States Public Health Service of Washington, D. C. The essential points are covered above, with the exception of Rule 11, which says, "In case the disease develops, go to bed immediately, and remain there until recovery. A physician should be called at once." Needless to say, this is excellent advice.

Annual Reports of Health Departments

The annual report of a health department is usually its most important printed document. Such reports should display the health wares of the community in the most effective manner, and they deserve, therefore, to be drafted with the utmost skill. The essential features of these health reports were ably outlined by Prof. Ira V. Hiscock, Associate Professor of Public Health at Yale, and Commissioner of the New Haven Board of Health, at the annual meeting of the New Jersey Public Health and Sanitary Association held in Princeton, N. J., December 8, 1928. Through the courtesy of Professor Hiscock we are presenting an abstract of his address.

Before beginning the preparation of any report, it is obviously essential to consider the groups who may receive and read it. Certainly the local officials, the members of the appropriating body and of the Health Board or Council should be interested. Representative citizens of the community, including school principals, librarians, and others, may derive profit from a properly prepared report. The general public may be acquainted with extracts of the various sections through the newspapers. Health departments of many cities have profited by an exchange of reports with those of other localities, because of the opportunity offered for comparison of health practices and results.

The major functions of a report may be listed somewhat as follows:

To summarize the chief activities of the year, including new developments

To provide a permanent record of health department activities

To present pertinent statistical data concerning the year's work and the mortality and morbidity experience in comparison with previous records

To give a brief account of the money expended

To make recommendations for program development

To serve as a medium of exchange of ideas between health organizations

A table of contents at the front of the report indicates the scope and facilitates reference to special subjects. This may well be followed by an organization chart or table, preceding the executive officer's outline of outstanding features of the year's work. It is always interesting to note the population, new projects or methods developed, trends of disease incidence, outstanding vital statistics, new legislation or ordinances, major accomplishments and recommendations and plans for the future. In larger organizations especially, a carefully prepared summary of the chief activities of each bureau or division is desirable.

The preparation of health reports should stimulate good bookkeeping. The maintenance of accurate records of health activities and results is an application of good business methods. Fully as necessary are adequate and accurate records for the wise direction of an organization engaged in the care and prevention of sickness and the promotion of public health.

In order that the report may be sufficiently interesting to accomplish its purpose, consideration in its preparation must be given to such factors as mechanics, strategy and journalism. A fairly light, dignified cover is a distinct asset. The use of the city or state seal, appropriate and carefully arranged type, and simplicity, are effective attributes. The choice of type is obviously an important question, and so it is best to use only a few standard faces on which there is no possibility of going wrong. A reliable printer is highly desirable. Legibility is dependent principally on the length of line in relation to type used and the space between the lines. Eleven point type* is a good size for reports. The most attractive papers are those without a shiny finish. Carefully selected and effective illustrations, photographs and charts add interest.

If funds are inadequate for a good printed report, consideration may be given to the use of mimeograph, multigraph or zincograph devices. In some cities, where formal reports are published, the health officers have been successful in securing publication of the essential facts of their reports in sections of the daily press. By this means, practically all important facts

*Editorial Note.—As a guide for those unfamiliar with type sizes, attention is called to the various sizes used in this magazine. This page is printed in 8 point on a 9 point body; the department of Municipal and Civic Publications, in 6 point on a 7 point body; and the main articles, in 9 on 10. "A Monthly Open Letter," on page 110 of this issue, is set in 10 point, which, in the opinion of the Editors of The American City, is sufficiently large for effective use in city reports.

A signal that flashes on and off two months at a time without attention

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MAN power is saved. The new Eveready Portable Flasher operates for two months or longer without attention. Four sturdy Eveready Dry Batteries supply it with certain, sure, ever-dependable light. An extra lamp inside the battery housing provides for emergencies.

The strongest winds, the fiercest rain cannot blow out, or drown out the warning light in the Eveready Portable Flasher. It is absolutely impervious to weather conditions.

The intermittent flash of the warning light draws immediate attention to the danger. The four sturdy Eveready Dry Batteries operating this remarkable flasher are designed to take advantage of the intermittent action. They last longer because they recuperate in the short periods between flashes. The new Eveready Portable Flasher is sold through National Carbon Company's distributors.

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Specifications—Height 16 inches. Diameter of base 7 inches. Weight, including batteries, 16½ pounds. Requires four standard Eveready 6-inch Dry Cells connected in series to deliver 6 volts. Extra 6-volt lamp inside battery housing. Battery compartment constructed of seamless steel attractively finished in red. Top of flasher cadmium plated for weather protection. Heavy fresnel-type red glass lens. Padlock for battery compartment with an extra-long hasp so that the device can be chained. This flasher is of rugged construction throughout and entirely weather-proof.

are published as news items and are read by more people and at an earlier time than would be possible if such facts were not made available until the report came from the printer. The best reports show individuality. Style is the life of a report and that must be individual.

Tuberculosis in a Large City

A diagnosis of what Dr. Haven Emerson has aptly called "the community's favorite communicable disease" has recently been made in Cambridge, Mass. The disease is tuberculosis and the diagnostician in this case was Prof. M. P. Horwood, Ph.D., of the Massachusetts Institute of Technology. His thorough survey of tuberculosis and its control in this city, made during the summer of 1927 under the auspices of the local anti-tuberculosis association, has recently been published in a pamphlet of some 200 pages.

In an interesting comment on this investigation, which appears in the *New England Journal of Medicine* for December 13, 1928, Dr. Haven Emerson, of Columbia University, points out that the assembling of the facts struck one snag, a peculiarly medical obstruction. The physicians have consistently failed to report at least two out of every three cases they attend. "Why," he pertinently asks the doctors, "do you report 17 per cent of your cases of tuberculosis after they die, and 19 per cent more only within one month of the date of death and of these about one-half in the last week of their lives? Don't you recognize pulmonary tuberculosis until death is staring you and the patient in the face?" Perhaps it isn't a question of recognition, but of expediency and of lax administrative enforcement of reporting laws.

A tuberculosis death-rate of 80.3 per 100,000 population was found in Cambridge by Dr. Horwood, though, as would be expected, he also found much variation in different localities and in different racial groups. Thus, the death-rate among the colored was from two to four times as high as among whites, and there were high rates among Newfoundlanders, Portuguese, Irish, and Irish-Canadians.

The zeal with which the surveyor did his work in Cambridge is indicated by the fact that in the five sections of his report he makes a total of 134 recommendations. One of the most significant is that the city should have a full-time health officer, properly qualified by training and experience, by tact and personality, and by adequate standing in the profession of public health, to organize, direct and supervise the public health program of the municipality. As Dr. Emerson well says, the report is more than a diagnosis, it is a challenge. It remains to be seen what Cambridge will do about it.

Attractive Health Bulletins

Honorable mention is deserved by the Syracuse and New Haven Health Departments for the most attractive Christmas numbers of their monthly health bulletins. Both were done in colors and were exceptionally well arranged, with appropriate Christmas greetings and articles suited to the season. The type in the New Haven bulletin was somewhat smaller than it should have been, but on the whole this and the Syracuse "Better Health" have set an example well worth emulation by other city health departments. Perhaps there were others, but they did not happen to come across our desk.

Milk Pasteurization in New York

About 82 per cent of the milk consumed in New York is now pasteurized, according to data assembled by the State Department of Health and presented in *Health News* for December 24, 1928. The figures are exclusive of New York City, where all milk except certified must be pasteurized. One city, Lackawanna, had 100 per cent pasteurization, and 15 had more than 90 per cent. Apparently only one of the 59 cities of the state, Port Jervis, has the discredit of using no pasteurized milk.

The total amount of milk sold daily was nearly a million and a half quarts, which amounts to a per capita consumption of 1.05 pints a day. In a rural district, comprising four counties, it was found that the consumption of milk was only about half a pint per capita per day, making the estimated total for the state, exclusive of New York City, about 0.8 pints per capita. This amount is, of course, less than the healthful minimum of a quart a day for all children and a pint a day for all adults.

Prepared by
FRANK B. WILLIAMS
Author of "The Law of City Planning and Zoning"

ZONING and PLANNING NOTES

From Data collected by the Zoning Committee of New York (233 Broadway)

Zoning Ordinances Adopted During 1927 and 1928 and Not Hitherto Reported Here

BLOOMING GROVE, N. Y.—August 31, 1928.
CHESTER, N. Y.—April 20, 1928.
GOSHEN, N. Y.—June 11, 1927.
HASTINGS-ON-HUDSON, N. Y.—May 4, 1928.
MONROE, N. Y.—April 13, 1928.
WASHINGTONVILLE, N. Y.—May 7, 1928.

Dedication

KENTUCKY.—*Tolliver v. Louisville and Nashville R. R. Co.*, 10 S. W. Rep. (2d) 623.—Where rural territory becomes part of a town, established highways and pass ways which the public has acquired the right to use, automatically become highways within the town and remain such until they are abolished by the town in some legal manner.

Where the easement of passage is acquired by the public by reason of continued use of the road as a matter of right, the property becomes impressed with the easement notwithstanding the failure of the town to accept the road as a public way.

Seasonal Non-Conforming Use

MICHIGAN.—*Adams v. Kalamazoo Ice and Fuel Co.*, 22 *N. W. Rep.* 86.—Where the occupational use of premises is seasonal and means for use are installed awaiting the opening of the season, there exists "lawful occupational use" within a zoning ordinance which excepts existing non-conforming uses; the use being of the same nature during periods of inactivity between seasons.

Land Under Navigable Water

MISSISSIPPI.—*Wood v. Mooney, Supreme Court*, reported in the *New Orleans Item* of October 12, 1928.—According to the newspaper report, the defendant bought the title to land under navigable water in front of plaintiff's riparian property, and proposed to fill in the land and construct an island. *Held*, that defendant had no right to do so. The land under water is owned by the state in trust for the people as a whole, the proposed use would injure the plaintiff, and the state cannot sell it to the defendant to be developed in that way.

NOTE BY EDITOR.—This decision, important everywhere, is especially so, perhaps, in California and Florida. It does not follow that in no case can a person who does not own the riparian land purchase the title to land under navigable water in front of it, and fill it in. If such an island can be so located and constructed as not materially to injure the riparian land, such a development would be legal. (See on this subject "Foreshore and Rights in Land under Navigable Waters in the New York Region," by Frank B. Williams, being a Reprint of Part IV, of Survey Volume V, published by the Regional Plan of New York and Its Environs, 130 East 22nd Street, New York.)

Restriction of Number of Families Based on Inadequacy of Sewer Facilities Valid

NEW JERSEY.—*Van Duyne, Inc. v. Senior, Building Inspector of Montclair (Supreme Court)*, 140 Atl. Rep. 392; *same v. same (Court of Errors and Appeals)*, 143 Atl. Rep., 437.—A building code limiting apartment houses throughout the town designed to house more than six families to a height of three stories is reasonable and valid in view of the sewage situation in the town, under which the erection of higher buildings would render sewage facilities inadequate and menace the safety and health of the inhabitants.

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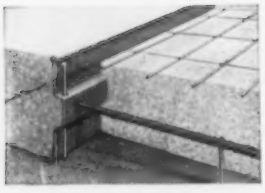

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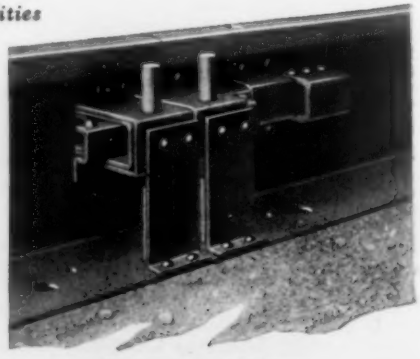

Truscon Road Form

Right to Maintain Fence

NEW YORK.—*Erit Realty Corp. v. Sea Gate Association*, 249 N. Y. 417.—This is a motion for the reargument of this case, summarized in these notes for November, 1928, page 173. The motion was denied, the Court, however, rendering a written opinion.

Taking Boarders a Commercial Use

NEW YORK.—*Hicks v. Stoermer, Supreme Court*, Kings County, reported in *New York Law Journal*, December 29, 1928.—If a person in order to occupy a one-family house rents a room or two to help out, no injunction will issue; but if the place is frankly turned into a public rooming-house, it is a commercial venture, and its use as such will be stopped in a zone where such ventures are forbidden.

Dedication

TEXAS.—*Blair v. Austin*, 10 S. W. Rep. (2d) 1054.—Where a purchaser buys with reference to a plat and thus acquires an easement on certain streets, the city may transfer its title to the street without closing it by ordinance, but such transfer does not give the transferee the right to stop the street or deprive the owner of the easement of his right of passage through it.

Police Power Building Line

VIRGINIA.—*Nusbaum v. City of Norfolk*, 145 S. E. Rep. 257.—The legislature may confer power on a city to establish building lines by police power.

If a city ordinance directs a city manager to establish a building line pursuant to charter, and he did not do so, but merely gave building permits requiring owners to construct with a 5-foot setback, such owners acquired no right to compel owners of similar lots to set back, and could recover no damages for the abandonment of the so-called building line.

A police power ordinance requiring a 5-foot setback gives abutting owners no vested interest in the ordinance, nor can the council make it irrepealable. Council could therefore abandon the line whenever in its discretion public welfare demanded.

Reports of Zoning and Planning Bodies

The Board of City Planning Commissioners of Los Angeles, Calif., under date of June 30, 1928, has made an interesting annual report with regard to zoning and planning in that city. In it will be found a tabulation showing zoning progress from 1925 to 1928. From these tables and other facts stated in the report two facts of outstanding interest are revealed:

1. That approximately double the ultimate required amount of business area is set aside for that purpose.
2. That the areas set aside for single-family residences are less than one-sixth the amount set aside for multiple residences, while in actual use there is approximately only one-fifth as many multiples as there are singles.

That such zoning is detrimental not only to the city as a whole but to the property so zoned is obvious.

There are in the report also tables showing action with regard to building lines, and to subdivisions.

The Commissioners have also issued a typewritten article dated November 15, 1928, and a printed leaflet dated December 22, 1928, bringing the zoning statement up to date.

William C. Kern and Lloyd D. Claycombe, attorneys for the Plan Commission and Board of Zoning Appeals of Indianapolis have issued a typewritten report giving an outline of the cases affecting these bodies which have arisen during 1928.

Model Zoning Ordinance for New Jersey

The Bureau of Municipal Information conducted by the New Jersey State League of Municipalities of Trenton, has just issued in typewritten form a model zoning ordinance for use under the zoning enabling act of 1928.

Wholesome Conditions in Cities Depend More on Distribution of Growth Than on Rate of Growth

A MAIN PURPOSE behind all planning should be to attain the nearest possible approach to that ideal pattern of distribution of industry and population which would give to every person, or group of persons, the degree of spaciousness in their immediate surroundings that is necessary for their health, safety and convenience.

If we could attain this ideal, it would mean that the open areas—including streets, yards, and parks—and the built-up areas would be so related and balanced that the inhabitants of the city could perform their social and economic functions without the injury to health, the danger to life and the economic waste which result from the present haphazard and unbalanced growths. Such an ideal is of course unattainable in those large districts where defective urban distribution is already established. But why any community cannot attain the ideal in the environs of the city, where the regulation of new growth is still practicable, is difficult to understand, for its attainment is dependent entirely on intelligent application of planning and of the powers of government. Yet in the building of new suburbs some of the worst and most avoidable defects of the older parts of cities are continually being repeated.

The *distribution* of growth in an urban area is more important from the point of view of obtaining wholesome conditions than is the *extent* or *rate* of growth. This is indicated by the fact that two-thirds of the land in the New York Region could provide for a population of 20,000,000 at an average of 9 persons to the acre. The fear that it would be a tragedy to have two or three times the present population in the Region does not arise because of insufficiency of land to give adequate space for industry, residence and recreation on a basis of healthy density. The fear is grounded on the assumptions that the existing unbalanced conditions of growth must continue; and that, as the population multiplies, the evils of congestion and the degree of separation between the places where people live and the places where they are employed or get their outdoor recreation, will increase in like proportion. Efforts to ameliorate the defects of cities should be directed toward making them better places to live in, rather than resisting their future extension. Owing, however, to the manner in which the average city has grown, it may be necessary, and is usually desirable, to provide relief for its congested areas by transferring industries and population to new areas where there is adequate room for healthy growth. There should be two parallel movements—one to encourage movement of industries and population away from the crowded centers, and the other to introduce better conditions for the industries and population that remain.

As processes in civic growth or change, either centralization or decentralization may be good or bad. What is always bad, and needs to be remedied, is congestion, or that excessive degree of concentration that harms the living or business conditions of the community. Much social evil and economic loss results from excessive decentralization, when it takes the form in urban areas of disorderly scattering of homes over wide areas without sanitary conveniences.

If urban decentralization merely means removing congestion from a large to a small center, or to an unsanitary suburban area, it will result not in checking the evils of crowded growth, but merely in shifting their incidence.

Perhaps it would be more correct to say that what is needed in connection with the problems of concentrated industrial and business growth in a region is not decentralization but a re-orientation of centralization on the basis of making all its centers and sub-centers healthy, efficient,, and free from congestion. This would involve breaking up unwieldy centers and creating new centers and sub-centers, as well as dispersal of some industry from its overcrowded centers to those that have space to permit of economic functioning and expansion. As this dispersal and creation of new sub-centers takes place, the movement of population to the environs of the sub-centers will afford relief to the existing areas of congestion. But this will not solve any problem unless the sub-centers are planned so as to avoid the recurrence of the evils of congestion.

—From the report on Population, Land Values and Government, of the Regional Plan of New York and Its Environs (January, 1929).

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Legality of Private Encroachments Upon Streets.—A taxpayer not injured through encroachments upon street space caused by a stoop, a bay-window, etc., had no standing to maintain a suit to compel municipal authorities to require the abutting property owner to remove the encroachments, decided the New York Court of Appeals in the case of Green vs. Miller, 162 N. E. 593. The property in question fronts upon Lexington Avenue in New York City. The following extracts from the opinion will show how the Court was guided in its conclusions by certain general principles concerning legality of street uses:

"The city may at all times abate a public nuisance. No decree of the Court is required. But this power rests upon the fact that a public nuisance does exist. So, too, where the official is negligent the Court doubtless may by mandamus compel him to do his duty. It will not require him to interfere with private property, however, unless concededly it is a nuisance, or unless the owner has an opportunity to be heard upon the subject.

"The title of the streets of New York is held by the city primarily in trust to promote traffic and transportation. An unauthorized use of them by individuals is illegal. But of them the Legislature has paramount control. Certainly it may allow their use for any public purpose not inconsistent with street needs—for the erection of telegraph poles, . . . for surface, elevated, or underground railways; for many other things. It may close them entirely, if that be wise. It may do more. It may authorize structures in public streets for private benefit, which are incident to ordinary street uses, which do not unreasonably interfere with traffic, and which have been sanctioned by long usage. An encroachment without such a permit; with it, they are such no longer. . . .

"It is to be observed, however, that we deal solely with the authorized occupation of the street, regarded as a public nuisance. If such occupation is injurious to private rights, as to them the legislative power does not extend. . . .

"The Greater New York charter says that streets and other public places in the city shall be inalienable. . . . No local authority may grant the right to occupy them permanently. . . . The most it may give is a license, revocable under proper conditions, if that power be elsewhere conferred upon it. And the same thing was true before this express prohibition. There was never authority permitting the city to alienate any part of its streets.

"A revocable license, however, is a different matter. For many years the streets have been bounded by a so-called building line. The location of this line appears on an official map. . . . For many years also some private use of street areas has been permitted. Stoops, steps, areaways, cellar openings, vaults, awnings, bay windows, cornices connected with adjoining buildings, and not unreasonably interfering with traffic, have all existed. As they must be removed on demand of the city, in actions for specific performance the existence of many have been held to make the title to the adjoining building unmarketable; but their presence has not been supposed to create a public nuisance whose removal would be compelled by the courts at the instance of any taxpayer.

"Nor do they create such a nuisance if erected by permission of the city."

Licensing of Open-Air Parking Places Held Authorized by General Welfare Clause in City's Charter.—The right of the city of Minneapolis to impose a $10 annual license fee upon "open-air motor vehicle parking places," operated for hire and accommodating ten or more vehicles, was upheld by the Minnesota Supreme Court in the case of State vs. Morrow, 221 N. W., 423. It was held that the regulation was authorized by a charter provision permitting the adoption of ordinances "for government and good order of the city," and that there was no unjust discrimination in limiting this particular regulation to places accommodating ten or more cars. The Court said, in part:

"Such a general welfare clause as that found in the charter of Minneapolis is intended to make the powers of the council sufficiently expansive to enable them to meet and provide for new conditions as they arise. Having held, upon what appeared to us ample reason, that automobile filling stations may be licensed, we see no way of avoiding the conclusion that open-air automobile parking places are equally subject to supervision and regulation.

"Much can be said in support of the argument which criticizes the ordinance because it fails to prescribe any standard to govern the council in granting or refusing licenses. It is silent as to both the grounds upon which parking places are subjected to regulation and the purpose of it. But there again the point has been settled adversely to defendant. The propriety of vesting such a discretion as that now involved in a 'board appointed for that purpose' was sustained in Fisher v. City of St. Louis, 194 U. S. 361, 24 S. Ct. 673, 48 L. Ed. 1018. . . .

"There is no merit in the contention that the omission from the scope of the ordinance of parking places harboring less than ten cars results in unconstitutional classification. Even if such places as a whole require regulation, it may well be that the smaller ones can be sensibly ignored. The parking of a few cars on a lot is not apt to create a nuisance, impede traffic, or obstruct sidewalks. So ordinarily there is nothing objectionable in confining such regulation to places having a capacity above a stated and reasonable minimum. There is no constitutional objection to such a measure because it does not extend 'to all cases which it might possiby reach.'"

City Held Not Bound to Furnish Water or Sewer Service to Ambulatory Structures, Such as Lunch-Wagons.—In the case of Flynn vs. Media Borough, 20 Pa. Munic. Law Rep. 60, the Court of Common Pleas for Delaware County Pa., decided that Flynn was not entitled to a writ to compel the borough to afford him water and sewer connections for his so-called dining-car, a lunch-wagon stationed on a lot he had leased.

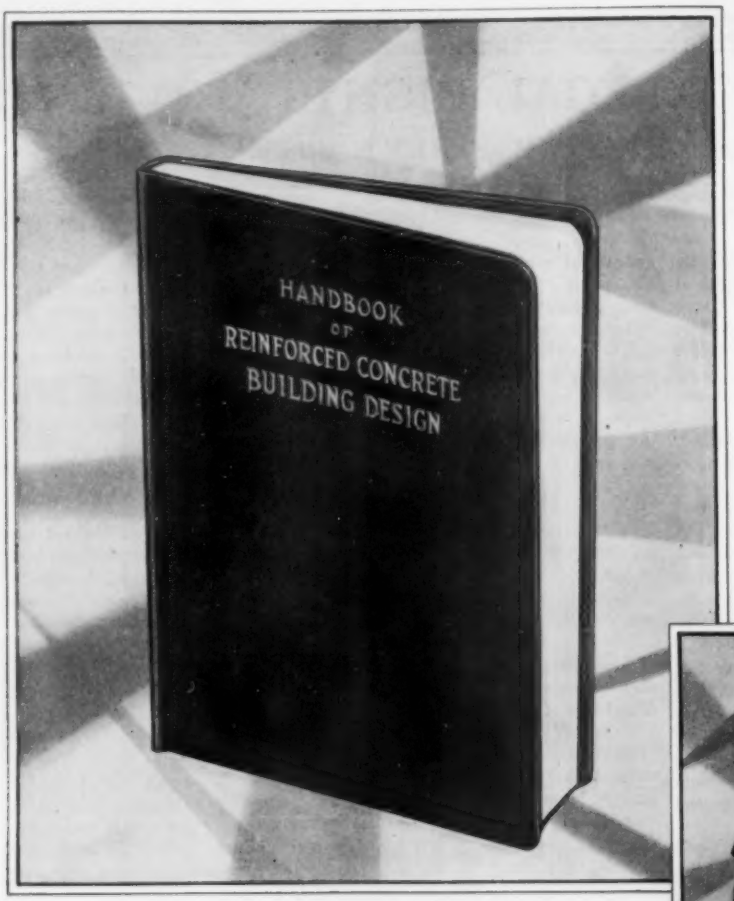
The substance of the Court's decision is that a municipality operating water and sewer systems is entitled to make and enforce reasonable regulations governing the service furnished, and may refuse to furnish water or sewer connection where the consumer has no permanent location. The Court adds that this is particularly true where the structure for which service is desired has been erected and is being maintained in violation of regulations of the municipality. But the opinion makes it clear that service may not be afforded some consumers and be denied to others similarly situated; the prohibition must act uniformly.

Owner of Non-Abutting Property Could Not Enjoin Vacation of Part of Street.—Because plaintiff's property did not abut upon a portion of a street vacated by defendant city, the Washington Supreme Court decided in the case of Kemp vs. City of Seattle, 270 Pac. 431, that he had no standing to enjoin the vacation proceedings.

It was held that the fact that plantiff's property had been assessed for improvement of the street did not preclude the city from vacating that part of the street over his objection. The opinion lays down the following general principles aplicable to cases of this kind:

"A property owner whose property does not abut upon a portion of a street which it is proposed to vacate or which is obstructed has no right of action to restrain the vacation or prevent the obstruction, unless the access to his property is interfered with and he suffers a special or peculiar damage differing in kind from that of the general public. . . .

"With reference to light and air, the rule is that a property owner whose prop-



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erty does not abut upon the portion of the street or alley sought to be vacated has no right to complain because of the shutting-off of light and air from his property. . . .

"If the complaining owner's property abuts upon the portion of the street sought to be vacated or obstructed, he has a right to restrain such vacation or obstruction. . . .

"Property is said to abut upon a street or highway when there is no intervening land between it and such street or highway. . . .

"When property abuts, the lot line and street line are in common."

Engineers' and Attorneys' Fees Fixed Upon a Percentage Basis Under a Municipal Improvement Program Held Not Objectionable.—In the case of Massengill vs. City of Clovis, 270 Pac., 886, decided by the New Mexico Supreme Court, taxpayers objected to a paving program on account of the basis on which engineers' and attorneys' fees were to be computed. But the Court said:

"The objection made is that the engineer and attorneys are paid on a percentage basis on the contract price for the improvement, and it is urged that this method is contrary to sound public policy upon the ground that inducements are thereby held out to these persons to increase the contract price as much as possible and thereby increase their compensation. The unsoundness of this contention is apparent. The engineers and attorneys have no discretion or power to determine the character of the improvement, or the price to be paid therefor. They therefore have no opportunity to control any of the proceedings in putting in the program; that duty devolving solely upon the city officers having the matter in charge. For this reason the objection to this method of compensation is clearly untenable."

Protests Against a Bond Issue Which When Filed Required a Referendum Held to Have Been Irrevocable.—A decision having a bearing on all cases where municipal action may be stayed or made the subject of a referendum, under statutory provision for a filing of protests by taxpayers, was handed down by the New Jersey Court of Errors and Appeals in the case of Sullivan vs. Mayor and Council of the Borough of Ramsey, 143 Atl., 364.

The New Jersey statutes require a submission to popular vote of proposals to issue bonds if protest against the issue be filed by taxpayers representing at least 10 per cent of the valuation of the municipality's taxable property.

Such protest was filed against a proposed issue of bonds in this case, but enough signers attempted to withdraw to make the remonstrance ineffectual.

The New Jersey Supreme Court upheld the right to withdraw (139 Atl., 886), but the Court of Errors and Appeals reversed the decision. Said the higher Court:

"The legislative requirement [for a referendum] was completed when the necessary number of signatures were attached to the protest and filed with the clerk, and it was not within the power of any of the protesters or of the clerk in that status to withdraw from such protest any name attached thereto so as to render the statutory requirement nugatory. Nor do we consider this construction of the legislation at all inimical to that expressed in Wilson v. Borough of Collingswood, 80 N. J. Law, 626, 77 A. 1033, where apparently the withdrawals were held to be valid because when made the signatures to the remonstrances were not sufficient in number to defeat the proposed scheme of the municipality."

It was further decided that the protest became effectual when deposited in the clerk's office—that that official could not defeat its validity by either omitting to note on the protest that it had been filed or by striking out such notation after having made it.

Bond May Be Requred of House Movers.—A city of the first class can require any person who desires to engage in the business of moving houses along the streets to give a $500 bond, conditioned that he will pay all expense incurred in the removal, cutting, or raising of wires necessary to permit a house to be moved. (Tandy vs. City of Wichita, 266 Pac. 930, decided by the Kansas Supreme Court.)

Taxpayer May Enjoin Payments Under Contracts Not Awarded Under Required Competitive Bidding.—That loss to an individual taxpayer may be almost infinitesimal, through illegal award of a contract without inviting competitive bids, does not preclude his suing to restrain payments thereunder, holds the Wisconsin Supreme Court in the case of Wagner vs. City of Milwaukee, 220 N. W. 207. The Court affirmed a judgment enjoining defendant from paying certain printing bills.

It was also decided that illegality in cases of this kind is not subject to validation by the City Council, because if an illegal contract could be ratified by the city authorities, that would open the way to nullification of charter and statutory provisions requiring awards to lowest responsible bidders.

Water-Works Property of a City Situate in Another Municipality Held Taxable.—Because water-works property owned by a city within the limits of a town was not being used for governmental purposes, the Rhode Island Supreme Court decided (City of Providence vs. Hall, 142 Atl., 156) that it was not exempt from taxation by the town. In the course of an extended opinion discussing generally the taxability of municipal property, the Court observed

"Immunity from taxation must be determined by construction of the constitution or statute of the particular state where the question arises. . . . In some states it is held that such property as is involved in this case is presumptively immune because owned by a governmental division, and that it is taxable only if expressly so provided by statute. . . . The city here admits that ownership by a governmental division is not necessarily for a governmental use. Nowhere is property owned by the city and employed for a governmental use held to be taxable. This is because of the inherent nature of a sovereignty. Pond . . . calls an attempt to tax such property 'the useless and inconsistent formality of permitting the government to tax itself to pay itself money which could finally only be secured by other taxation.' This reason has no force when applied to a tax by the town of Scituate imposed upon land owned by the city of Providence within the town limits, and not used for a governmental purpose."

City Was Liable for Injury Caused by Sagging Electric Wires in Park.—A youngster was seriously injured in a borough park, by grasping a high-voltage electric wire which had been permitted to remain in a sagging position four or five feet above a place where children customarily played. Affirming judgment in his favor against the borough, the Pennsylvania Supreme Court declared in the case of Novak vs. Borough of Ford City, 141 Atl., 496:

"It was defendant's duty to place the wire safely and so keep it by inspection and repair. If from any cause it unduly sagged, the defendant should have found and repaired it. . . . Public places where children are accustomed to play should be safeguarded against that which is likely to cause them harm."

Neither a City Nor Its Concessionaire Was Liable for Drowning of Child in Park Swimming Pool.—In the case of Warren vs. City of Topeka, 265 Pac., 78, the Kansas Supreme Court ruled that plaintiffs had no right of action on account of death of their twelve-year-old daughter who was drowned at a four-foot drop-off in a swimming pool in a park operated by the city. The negligence charged was failure to warn bathers of the drop-off.

As to the city, the Court reaffirmed the rule laid down in a previous and similar case, to the effect that a swimming pool in a public park is not a nuisance and that in maintaining one a city is engaged in a governmental function and therefore immune from liability for resulting injuries, etc.

As to a co-defendant of the city, it was found that his arrangement with the city was such that although he had the exclusive privilege of operating all concessions in the park, it was under a contract reserving to the city complete supervision and control of the entire park and the right to regulate operation of the concessions. Hence, he was treated as more nearly an employee of the city than a lessee and as such immune from liability.

Power in a City to Designate the Route of a State Highway Through Its Limits Implies Broad Discretion.—"Where city officials are authorized to designate the route of a state highway through a city, as in the case at bar, they are vested with a broad discretion with which courts will not interfere by granting injunctive relief, except in cases of fraud or where there is a manifest or gross injustice which would constitute an abuse of discretion." That is the official syllabus to the decision of the Oklahoma Supreme Court in Whittington vs. Dyer, 265 Pac., 126.

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MUNICIPAL AND CIVIC PUBLICATIONS

Orders for books reviewed in this department will be filled promptly by THE AMERICAN CITY. Pamphlets, reports and all other publications should be ordered direct from addresses given. Prices do not include postage unless so stated.

American Sewerage Practice, Volume 1.—By Harrison P. Eddy. McGraw-Hill Book Co. 1928. XVII + 759 pp. Illustrated. $7.00.

Fourteen years after the publication of the first edition of Volume 1 of American Sewerage Practice under the authorship of Leonard Metcalf and Harrison P. Eddy, the surviving author has prepared this new edition in which there has been considerable rearrangement of material, much rewriting, and material added to make the book even more complete as a reference volume.

The introductory chapter covers lessons taught by early sewerage works and is one of great interest. This is followed by the more technical chapters covering the general arrangement of sewerage systems; the flow of water and sewage; velocities and grades; measurement of flowing water; quantity of sewage; separate sewers; precipitation; storm-water run-off; storm drains and combined sewers; gaging storm-water flow in sewers; sewer pipe; masonry sewers; loads on sewers; the analysis of stresses in sewer sections; inlets, catch-basins and manholes; junction, siphons, bridges and flushing devices; regulators, overflows, outlets, tide-gates, and ventilation; and a concluding chapter on pumps and pumping-stations. The book is replete with tables, diagrams and illustrations of various appurtenances, and is an invaluable addition to the literature on sewer design. It is hoped that the span of years will be short ere Volume 2 and Volume 3 of American Sewerage Practice will appear in revised version and brought up to date as has been the first volume.

Sewerage.—By A. Prescott Folwell. John Wiley & Sons, Inc., New York. 1929. X+399 pp. $4.50.

This is the tenth edition of this book, first published in 1898. It contains revisions, following up the development of activated sludge treatment. The entire part devoted to sewage disposal has been rewritten, and Part I, devoted to sewerage systems, makes use of more recent data and illustrations.

Simplification and Purchasing.—By George A. Cooper, Division of Simplified Practice, U. S. Department of Commerce, Washington, D. C. Simplification or simplified practice is the reduction of variety in sizes, dimensions and immaterial differences of commodities as a method of eliminating waste, reducing cost, increasing values, and raising the standard of living. The practice applied to purchasing, and the advantages, are set forth in a 10-page mimeographed bulletin with the above title. (Apply to the Division.)

New Jersey Department of Conservation and Development.—A report on control of floods and drainage of wet lands in the valley of the Passaic River and its tributaries, made by Cornelius C. Vermeule, engineer in charge, and transmitted by the Department to the Governor December 11, 1928. 40 pp. (Apply to Henry B. Kummel, Director, Trenton, N. J.)

The Policeman's Handbook of Law.—By Frank Mackett, L.L.B., of the Wisconsin Bar. A pocket reference work especially for police officers. With appended section on "The Science of Finger Prints," by William L. Simmonds, finger print expert, Auburn State Prison. 160 pp., paper bound. (Apply to publishers, the Sheriffs and Police Officers Association of America, City Hall Square, Chicago, Ill. or District National Bank Bldg., Washington, D. C.)

License Fees in Wisconsin Cities.—Information Report No. 68 of the Municipal Information Bureau, University Extension Division, University of Wisconsin, is the first study of its kind to be issued for ten years. It contains complete information in tabular form from all but 5 of the 144 cities of the state. 21 pp. 25c. (Apply to the Bureau, Madison, Wis.)

Report on Tennessee Highways.—Commissioner Harry S. Berry of the Tennessee Department of Highways and Public Works presented this report at the Highway Meeting on November 15, 1928. It is reprinted in a booklet of 41 pages, which briefly describes the highway system of the state and the relation of the State Highway Department thereto, and recommends the adoption of a comprehensive state policy for a properly interrelated system of highways. (Apply to the Department.)

Final Report of the Committee on Cross-Connections, New England Water Works Association.—This committee of ten members has been studying the matter of cross-connections in water-supply for some time, and, after various meetings, prepared this report for submission to the Association on December 12, 1928. The report proper covers 130 pages followed by 21 pages of appendices. (Apply to E. Sherman Chase, Committee secretary, 715 Tremont Temple, Boston, Mass.)

Comparative Statistics, Cities of Ohio, 1927.—This useful annual compilation by the Bureau of Inspection and Supervision of Public Offices under the Auditor of State, has recently appeared for the year 1927. It shows the receipts of each of the 93 cities from taxation and other sources, and expenditures for the various municipal functions, both total and per capita. Municipally owned utilities are included. The text of the Ohio Uniform Public Accounting Law under which the Bureau operates is given. 112 pp. (Apply to Joseph T. Tracy, Auditor of State, Columbus, Ohio.)

Studies of Methods of Making Deval Abrasion Tests of Aggregates.—A reprint, of 26 pages, of a paper by Stanton Walker, Director of the Research Division, National Sand and Gravel Association, Washington, D. C., from the Proceedings of the American Society for Testing Materials, 1928. (Apply to author.)

Descriptive Survey, Department of Water Supply, Detroit, Mich.—A 59-page booklet, dated October 1, 1928, describing the history, growth and activities of the Department, prepared by the men in charge of the various bureaus. (Apply to George H. Fenkell, General Manager, Department of Water Supply, Detroit, Mich.)

Traffic Regulations, 1929.—A 70-page pamphlet, compiled by Grover Smith, Executive Assistant, Safety Section, Office of City Manager, Cincinnati, Ohio, represents a step forward in making traffic regulations both readable and easy to interpret. All important regulations are summarized at the beginning under a few easy-reference subject heads, and there is an excellent subject index. The text is interspersed with sketches illustrating regulations. (Apply to C. O. Sherrill, City Manager, Cincinnati, Ohio.)

Electric and Water Service Rate Schedules, Los Angeles, Calif.—A leaflet of 40 pages presenting in unusually attractive manner and with clear explanations the rate schedules for water and for electric service of the various classes, and containing other general information for consumers. (Apply to the Department of Water and Power, Los Angeles, Calif.)

Official City Plan of St. Charles, Ill.—A reference guide to the officially adopted plan of a semi-suburban town of 6,000 population. It contains zoning plan, building code, sub-division control ordinance, and other information. Prepared under direction of the City Plan Commission. Jacob L. Crane, Jr., and George F. Ingalls, associate, engineers and consultants. (Apply to the City Plan Commission.)

Proceedings, International Association of Street Sanitation Officials, 1928.—The ninth annual conference of this Association, held in Toronto, Ont., October 8-9, 1928, is reported in this booklet of 60 pages, which includes registration and membership lists, and papers on many subjects dealing with street cleaning, and also the disposal of waste in general, including garbage. Other papers have to do with sewerage, airports, etc. There are a number of illustrations relating to certain papers, and the discussions of papers are given. (Apply to A. M. Anderson, Secretary, 100 N. La Salle St., Chicago, Ill.)

Development of the National Capital and Environs.—A 64-page reprint from the Proceedings of the 1928 National Conference on City Planning, containing papers by Lieut. Col. U. S. Grant, 3rd, Charles W. Eliot, 2nd, Frederic A. Delano, Lieut. Col. J. Franklin Bell, Edward H. Bennett, Milton B. Medary, Jr., Frederick Law Olmsted, and J. C. Nichols. Illustrated. (Apply to the Conference, 130 E. 22nd St., New York.)

A Ten-Year Improvement Program for El Paso, Texas.—The report of the Robertson Committee— a citizen body appointed by the mayor of El Paso—which has formulated a long-time program of public improvements, set forth in a large-size 20-page booklet that contains a condensed schedule of proposed primary and secondary projects, an analysis of expenditures involved, and their effect on the tax rate. Various items are discussed in detail. (Apply to W. E. Robertson, Chairman.)

The Personal Factor in Highway Accidents. An address before the Highway Research Board, Annual Meeting, Washington, 1928, by Sidney J. Williams, National Safety Council. 5 mimeographed pp., with 4 pp. of tabulations and an outline of the technique of investigating personal causes attached. (Apply to the National Safety Council, 108 E. Ohio St., Chicago, Ill.)

The Nature of the Setting and Hardening Processes in Portland Cement.—A digest of the literature on this subject, prepared by R. H. Bogue, Research Director, Portland Cement Association Fellowship, Bureau of Standards, Washington, D. C., as paper No. 17 of the Fellowship. It includes a history of the subject and discussions of various theories. A bibliography of 70 items is given. 48 pp. (Apply to the author.)

Report of the St. Louis Tornado of September 29, 1927.—An illustrated booklet of 32 pages prepared by the Joint Committee of the Engineers' Club of St. Louis and the St. Louis Chapter of the American Institute of Architects, and published by these two organizations in September, 1928. The effect of the tornado is analyzed, with many examples of the destruction described and illustrated, and recommendations for greater structural security are given. An appendix presents a meteorological report with weather maps. (Apply to the Club, St. Louis, Mo.)

Regulation of Vehicle Operation on Highways.—Explanatory Notes on Act IV of the Uniform Vehicle Code, developed by the National Conference on Street and Highway Safety. These Notes, together with other pamphlets explaining the various Acts of the Uniform State Motor Vehicle Code and the Model Municipal Traffic Ordinance, have been and are being prepared to meet a widespread demand, and will be sent upon request to those interested. The present publication is a pamphlet of 43 pages which sets forth and explains in detail the reasons for the various provisions set forth in Act IV. (Apply to the Conference, 1615 H. St., Washington, D. C.)

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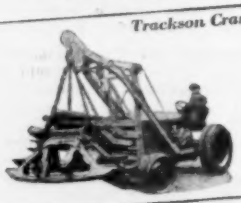

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Why not remember to mention THE AMERICAN CITY?

School Building Programs in American Cities.—By N. L. Engelhardt, Professor of Education, Teachers' College, Columbia University. Bureau of Publications, Teachers' College, Columbia University, 1928. 560 pp. $5.00.

This book represents the most comprehensive and instructive study of school buildings yet published in one volume. The cities whose surveys are included in this volume are varied in character and widely separated geographically, so that the book constitutes a cross-section study of school-building conditions and school-building needs in the United States. The studies of school buildings of Lynn, Mass., Watertown, N. Y., Fort Lee, N. J., Paducah, Ky., Greensboro, N. C., Augusta, Ga., Jacksonville, Fla., Beaumont, Texas, West Aurora, Ill., and Rye, N. Y., are all reproduced in full. Many of these reports are not available in printed form and those which have been published are not easily accessible. This collection, therefore, will meet a distinct need.

To students of education, superintendents of schools, school-building superintendents, city planners, and others interested in the development of school-building programs, this book will be invaluable. Not only does it include the latest techniques used in analyzing school-building needs, but the variety of situations presented makes it possible for a superintendent to adapt specific methods of study to meet his own local school conditions. The applications of the Strayer-Engelhardt standards for school buildings to practical concrete situations is amply illustrated. The book further contains a wealth of suggestions as to the preparation, presentation, and publication of pertinent facts on school-building needs. Since the success of a school-building program frequently depends upon the effectiveness with which the available material is assembled and portrayed, the charts, graphs, and maps found in these surveys will serve as excellent models.

W. S. ELSBREE.

Public Safety Division, National Safety Council, 1928.—Transactions of the Public Safety Division take up 192 pages of the 290-page Transactions of the Seventeenth Annual Safety Congress (New York, October, 1928), and contain important papers by Miller McClintock, Director, Albert Russel Erskine Bureau of Street Traffic Research, Harvard University; Ernest P. Goodrich, Consulting Engineer, New York; Hon. William McAdoo, Chief Magistrate, New York City; Hon. Seth T. Cole, Counsel to the Commissioner of Motor Vehicles, New York State; Hon. Robbins B. Stoeckel, Commissioner of Motor Vehicles, Connecticut; and a host of others. (Apply to the National Safety Council, 108 E. Ohio St., Chicago, Ill.)

A Year of Progress in New England; A New Industry for New England.—Two publications. The first is a 64-page report of the activities of the New England Council and its cooperating groups during 1928 in "developing and maintaining a sense of the importance of New England as an economic area of the United States"; "promoting New England economic progress"; and determining what is necessary to the further development and maintenance of that progress. The second is the account given by a high official in one industry of why that industry chose New England. 6 pp. (Apply to the Council, Statler Bldg., Boston, Mass.)

The Regional Planning Commission, Los Angeles County, Calif.—A 32-page, amply illustrated, 8 x 11-page booklet dated January, 1929, is presented "for the purpose of answering by example certain questions pertaining to regional planning." Among essentials, as listed (and as illustrated by maps, plans, and charts of the Los Angeles County Plan) are an effective commission, sound engineering principles, a comprehensive highway plan, wholesome regulation of land subdivision, comprehensive zoning, recognition of the problems of landscape design, etc. (Apply to Charles H. Diggs, Director of the Commission, Hall of Records, Los Angeles, Calif.)

The Borough System of Government.—A symposium on the system is now under consideration for Greater Montreal. It contains discussions of various phases of regional government by American and British authorities. Compiled by the Municipal Service Bureau of Montreal. 64 pp., paper bound. $1. (Apply to the Transportation Bldg., Montreal, Can.

Architecture in the New City. What Zoning Ought to Be. The Standardization of Zoning Symbols. Instruction on City Planning in the United States.—Three important articles and a reference list, comprising the first 45 pages of the *City Planning Quarterly* for January, 1929. George B. Ford, city planning consultant, tells how our cities of tomorrow in which a new architecture shall predominate, will have harmony of form and beauty of proportion. His 20-page article is illustrated with some of the best examples of existing public buildings. Mr. Heydecker's discussion of zoning is based on studies which he recently made in collaboration with E. P. Goodrich for the Regional Plan of New York. It is in effect a reappraisal of a principle which has now had 12 years of application in America and everyone concerned with zoning matters may read it with profit.

The suggested set of color symbols for zoning maps as originated and described by the Zoning Study Group, Los Angeles, Calif., are illustrated in color on a loose-leaf insert, copies of which will be sent on request to Zoning Engineer, Regional Planning Commission, Los Angeles County, Calif. The list of institutions where city planning is taught shows complete technical courses, lecture courses in departments of civil engineering and instruction primarily for college undergraduates. 75c. (Apply to *City Planning*, 9 Park St., Boston, Mass.)

Public Utilities Propaganda.—The title of an 8-page number of *Information Service*, the weekly publication of the Department of Research and Education for the Council of the Churches of Christ in America. It consists of an excellent resumé, without comment, of the propaganda activities of public utilities as brought out before the Federal Trade Commission. January 12, 1929. 10c. (Apply to the Department, 105 E. 22d St., New York.)

Annual Report, Department of Public Works, Chicago.—This 351-page book, replete with tables, charts, maps and photographs, is the 52d annual report of the Department and covers the year ending December 31, 1927. It includes the reports of the various bureaus—engineering, water rivers and harbors, streets, waste disposal, parks, sewers, maps and architecture. (Apply to the Municipal References Library, City Hall, Chicago, Ill.; 10c postage.)

Report and Information Book, Light Division, Tacoma, Wash., 1926-1927.—A 69-page booklet attractively gotten up and illustrated, which gives the history and description of the electric light and power system owned and operated by Tacoma under the Light Division of the Department of Public Utilities. This system, chiefly hydro-electric, is one of the largest in this country, and has the lowest average rate for consumers. The financial reports for 1926-1927 are included. (Apply to Ira S. Davisson, Commissioner of Public Utilities, Tacoma, Wash.)

Annual Report, Board of Water and Power Commissioners, Los Angeles, Calif., 1927-1928.—This booklet of only 85 pages deals with the Los Angeles water-supply system, under the Bureau of Water Works and Supply, the power-plants that operate in connection with the Los Angeles aqueduct, and the distribution system for generated and purchased power whereby the major part of the Los Angeles population is supplied, under the Bureau of Power and Light; the period covers the year ending June 30, 1928. The report is illustrated and contains many tables and charts. (Apply to the Board.)

Municipal Control of Venereal Disease.—A paper delivered by Henry F. Vaughan, D.P.H., Commissioner of Health, Detroit, at the 1928 joint meeting of the American Public Health Association and the American Social Hygiene Association in Chicago. Published in *Journal of Social Hygiene*, December, 1928, 6 pp. Stresses necessity of complete reporting of all cases to some properly constituted authority, thus enabling the health administrator to see that adequate control measures are established, and proper follow-up attention given. *Success in the control of venereal diseases depends upon the ability of the health officer to regard the problem as one in the control of communicable disease.* 35c. (Apply to the *Journal*, 370 Seventh Ave., New York.)

Report of Investigation of Low-Cost Improved Roads.—A volume of 311 pages, chiefly devoted to a report, indicated by the title, made by C. N. Connor of the Highway Research Board, Washington, D. C. It constitutes Part 2 of the Proceedings of the Seventh Annual Meeting of the Highway Research Board, December, 1927. The investigation consisted of a survey of the low-cost road situation, under the realization of the need of a large mileage of such roads. The book includes descriptive matter, critical comment, and illustrations relating to various types of low-cost roads, and presents the author's findings at considerable length. A final chapter of supplementary discussions by nine other highway specialists is given. (Apply to Roy W. Crum, Director, Highway Research Board, National Research Council, Washington, D. C.)

A Decade of Rural Progress.—Based on committee reports and on the Proceedings of the National Country Life Conference, 1927 and 1928. Edited by Benson Y. Landis and Nat T. Frame. Part 1 is devoted to statements of the issues of rural progress; Part 2 to accounts of progress in health, homes, schools, churches, welfare, recreation, government and finance; Part 3 to incomes and progress; and Part 4 to "The American Country Life Association After Ten Years." Many names prominently identified with all the various phases of rural progress are represented in the papers. 161 pp. $2. (Apply to University of Chicago Press, Chicago, Ill.)

Golden Jubilee, 1878-1928.—A Short History of St. Louis' Annual Civic Carnival through the fifty years it has been celebrated. A charming bit of de luxe book-making, with gold cardboard covers and page decorations, adding to the permanent attractiveness of the historical review. (Apply to Civic Carnival Committee, St. Louis, Mo.)

Land of the Noble Free.—A 12-page booklet decorated with amusing and highly pertinent cartoons, and setting forth a proposed program for rescuing New York State "rocks and rills, woods and templed hills" from behind "their breastwork of pills, cigarettes, or what have you?" The publishers, the Niagara Frontier Planning Board, North Tonawanda, N. Y., some time ago retained counsel to study the whole question and draft legislation looking to the reasonable control of private property along state highways in the interest of safety and the preservation of scenic beauty. The text of the proposed Highway Law, very similar to one to be introduced at the present session of the State Legislature, is given, and its legal aspects discussed by its author, Carlos C. Alden, Dean, University of Buffalo Law School. A survey of legislation, and judicial decisions in other states, is also given. (Apply to the Board.)

Comparative Tax Rates of 237 Cities, 1928.—By C. E. Rightor, Detroit Bureau of Governmental Research. A 13-page reprint from the *National Municipal Review*, December, 1928. This is the seventh compilation of these data. In it, the same form used in past years is kept. By a comparison of rates in 195 cities reporting in both 1927 and 1928, the author is able, in his preliminary discussion, to indicate the trend of tax rates, and to show an average increase of $.80 per $1,000 in 1928 over 1927. He notes the impossibility of evaluating relative tax burdens of cities until some check-up of assessing methods is applied in each city. (Apply to the *National Municipal Review*, 261 Broadway, New York.)

Criminal Justice.—Outline of a study course given by the Courts' Committee of the Woman's City Club, Cincinnati, Ohio, based upon the recognition of crime reduction as one of the outstanding problems of the day. Lecturers include Alfred Bettman, Charles P. Taft, 2nd, Dr. Charles E. Kiely, neurologist, Harry E. French, Chief of Police, and others. 13 pp. in *The Bulletin*, January, 1929. 10c. (Apply to Woman's City Club, Cincinnati, Ohio.)

Schoolboy Safety Patrols.—Sponsored by the American Automobile Association, Washington, D. C. A 4-page folder describing the purposes of patrol organization, and its efficacy in safety education. (Apply to the Association.)

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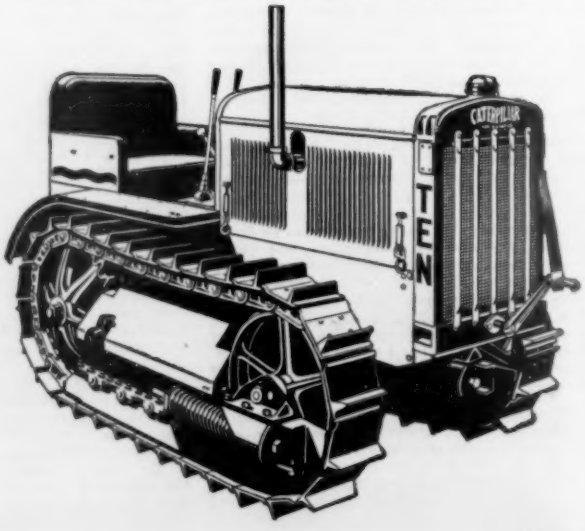

Association Management.—By Henry F. Holtzclaw, Ph.D. The Ronald Press Co., New York. 1929. 102 pp. $2.50.

Professor Holtzclaw has compiled a concise and helpful chamber of commerce handbook containing the fundamentals of organization and policy in that comprehensive field, "to meet the needs of officers and members of chambers of commerce and similar organizations, and for use as a textbook in college courses for the training of association secretaries." He makes no attempt to weigh the attributes or shortcomings of commercial and civic bodies, nor does he specify the multiplicity of perplexing details which constantly irritate chamber secretaries and directors. Rather, he outlines the primary organizational features of the average chamber of commerce, suggests the most generally accepted principles of management, and offers a foundation on which a successful chamber of commerce may be built. For infant chambers or the rapidly developing small-town organization, this little volume should prove of great benefit. The professor has made use of authoritative reports on civic organizational work from such sources as the Chamber of Commerce of the United States and the National Association of Commercial Organization Secretaries, and, in general, is cognizant of the latest managerial innovations and financial schemes that have been introduced in the larger cities. His discussion of what the chamber of commerce can do for the farmer is both timely and absorbing, presenting as it does, an apparently fruitful and worth-while field for pioneering and one which, in the majority of instances, has been unconsciously neglected even in many predominantly agricultural communities.

Directory of Public Employment Offices.—The United States Employment Service, U. S. Department of Labor, Washington, D. C., "serves **the public, bringing together** the jobless man and the manless job." No fee is charged applicant or employer. The present 20-page directory, superseding previous editions, lists by states and cities all public employment offices. (Apply to Government Printing Office, Washington, D. C.)

Proposed Highway Legislation.—Submitted by Harry S. Berry, Commissioner, Department of Highways and Public Works, Nashville, Tenn., January 15, 1929. Bills which would put into force and effect the first four of the six recommendations for the adequate development of public roads in the state, as made by the Commissioner in a recent report. With explanatory notes. (Apply to Public Works Department, Nashville, Tenn.)

Highway Improvement in the Regional Area of Cleveland, Ohio.—A report of a plan based on a survey of highway traffic by the Bureau of Public Roads, Department of Agriculture, Washington, and the County Commissioners of Cuyahoga County, Ohio. 190 quarto pp. Charts, maps, and photographs. Details of improvement plans in Cuyahoga County and in six surrounding counties take up a considerable part of the volume. Population and traffic density studies, and traffic forecasts are also given. (Apply to Bureau of Public Roads, Department of Agriculture, Washington, D. C.)

Unslumming the Slums.—A 6-page booklet outlining legislation necessary for meeting the low-rent housing problem in New York. Written and published by August Heckscher, 50 E. 42nd St., New York.

Play Day—The Spirit of Sport.—By Ethel Perrin and Grace Turner. A 77-page brochure issued by the American Child Health Association, 370 Seventh Ave., New York. It opens with a foreword by Mrs. Herbert Hoover, and, in addition to a wealth of other material, gives directions for organizing and holding Play Days. Fifteen typical Play Days as held in various parts of the country are described. 35c. (Apply to the Association.)

The Artificial Lake.—By J. French Paddock, consulting engineer. A 5-page article, with numerous illustrations on a subject which has been little discussed from the point of view of the engineering problems involved. In *National Real Estate Journal*, December, 1928. (Apply to the Journal, Chicago, Ill.)

The Use of Deed Restrictions in Subdivision Development.—By Helen C. Monchow. Institute for Research in Land Economics and Public Utilities, Chicago, Ill. December, 1928. 84 pp. $1.50.

This constitutes Research Monograph No. 1 of Studies in Land Economics, of which Prof. Richard T. Ely is editor, these studies being by members of the staff, with the cooperation of their associates, of the Institute for Research in Land Economics and Public Utilities, which will publish them from time to time in addition to its quarterly *Journal*. The monograph at hand deals with one phase of control over the development of urban land, the other phases of such control being city planning, zoning, and subdivision control ordinances. The specific control provisions of deeds are analyzed, from an economic rather than a legal standpoint, as to their effect upon the land in question and upon the parties in relation to each other. Their effect on the entire city plan is not considered. Restrictive clauses concerning type and use of structures, use of lot, duration, administration and racial discrimination are carefully set forth, with a number of tables, and the value of this mode of control is discussed.

Longview, Wash.—A Wonder City in a Wonderland; the Planning of the Industrial City of Longview, Wash.—Descriptions from two points of view of one of America's outstanding examples of made-to-order cities. The first is an exuberant story of accomplished facts, in the form of an attractive, copiously illustrated, community publicity booklet of 40 pages in which the agricultural and industrial, recreational and educational advantages afforded are fully set forth, for the benefit of prospective visitors and residents, by The Longview Company, Longview, Wash., which will send copies on request. The second is a description of Longview as a city-planning and zoning project as given at a meeting of the City Planning Division, American Society of Civil Engineers, by S. Herbert Hare, of Hare & Hare, Landscape Architects and City Planners, the designers of Longview, with resulting discussions. Available in a 12-page reprint from *Transactions* of the Society. (Apply to the author, Huntzinger Building, Kansas City, Mo.)

Fee Charging Employment Agencies.—John B. Andrews, Secretary, American Association for Labor Legislation, is the author of an article in the *American Labor Legislation Review*, December, 1928, in which he urges the necessity of new legislation to counteract the recent Supreme Court decision under which states are prohibited from limiting fees charged by private employment agencies. The author's recommendations, made to a recent official investigation committee and herewith given, include favorable sentiment for passage of the Wagner bill, now before Congress, which would permit the establishment of a nation-wide public employment system, and the strengthening of such a system by state action. A pamphlet reprint of this article includes a map indicating public employment office states, lists the 35 states having cash available and maintaining public employment offices during the last fiscal year, and gives the draft of a suggested state law regulating private employment agencies. 12 pp. (Apply to *American Labor Legislation Review*, 131 E. 23rd St., New York.)

Imhoff Tanks and Separate Sludge-Digestion During the Last 22 Years.—A German pamphlet ("Emscherbrunnen und getrennte Schlammfauling in den letzten 22 Jahren") by Franz Fries, Engineer of the Ruhrverband, Essen, Germany, reprinted from *Gesundheits-Ingenieur*, Sept. 8 and 15, 1928. The developments that have taken place during the last two decades in the design and operation of Imhoff tanks and separate sludge-digestion tanks are discussed, with stress upon the important position of Imhoff tanks in sewage treatment.

G. M. Fair.

Prohibition of Wooden Shingles.—The seventh edition (revised 1928) of the list of municipalities in the United States which have legislation against the use of wooden roofing materials within their corporate limits, has just been issued in a 12-page pamphlet. Details of regulations shown. (Apply to National Board of Fire Underwriters, Committee of Construction of Buildings, 85 John St., New York.)

National Association of Commercial Organization Secretaries. 1928.—The Proceedings of the 14th annual NACOS convention, held at Nashville, Tenn., comprise a 388-page publication. The large number of interesting papers and discussions are printed in full, and, as usual, the complete membership list. A historical sketch of the organization and its predecessors, as presented by W. E. Holmes, Chairman, History Committee, is one of the worthwhile contributions. (Apply to S. Valentine Saxby, Secretary-Treasurer, Chamber of Commerce, Duluth, Minn.)

Enterprise.—By Phillip W. Alexander. This is an allegorical narrative of "A City with a Fighting Spirit," which is neighbor to Tardytown. It tells of city and regional planning and industrial development accomplishments, and touches upon the efficiency with which the Enterprise payroll dollar is kept circulating in *Enterprise*. Civic and commercial organizations planning progress programs will find it interesting. Sample copies free. Special prices on quantity purchases. (Apply to the author, 1430 Twelfth Ave., San Francisco, Calif.)

Problems of Civic Development, Kalamazoo, Mich.—A 16-page report on the city plan survey made by Jacob L. Crane, Jr., to the City Plan Commission, December, 1928, and published by the Commission. It lists the maps and charts made in connection with the survey and outlines the outstanding problems to be dealt with in the comprehensive plan which is now under way. (Apply to Jacob L. Crane, Jr., Wrigley Bldg., Chicago, Ill.)

Civic Development Plans, Alton, Ill.—Prepared under direction of the Alton City Plan Commission, by Jacob L. Crane, Jr., and George F. Ingalls, associate, engineers, and consultants. A 32-page 9 x 12 publication covering the comprehensive city plan and its progress to date, including the adoption of the controlling ordinances and the official plan. (Apply to Jacob L. Crane, Jr., Wrigley Building, Chicago, Ill.

Work of European Labor Exchanges.—The primary purpose of labor exchanges is to find jobs for idle workers, and workers for idle jobs. The inadequacy of private labor exchanges has led in almost all European countries to the establishment of public institutions of this nature. The organization and administration of these placement methods, methods of training the unemployed, etc., are discussed in detail in an article by Peter A. Speek in the *Monthly Labor Review*, December, 1928. 13 pp., with appended reference list of laws relating to national systems of labor exchanges in foreign countries up to 1927. 15c. (Apply to Government Printing Office. Washington, D. C.)

Photostat Recording.—By George C. Havenner. Publication No. 12, Municipal Administration Service, 261 Broadway, New York. The photostat process is both cheaper and better than methods now in common use for recording written documents. Therefore it will recommend itself to the municipal official alert to discover more efficient methods of performing his administrative tasks. The history of photographic recording, the present use of the photostat by the United States Government, and photostats in local record offices, are herewith reviewed, with an appended discussion of the advantages of this method of recording. 16 pp. 15c. (Apply to the Service.)

A Guide for Preparing Annual Police Reports.—A 24-page publication issued by the Committee on Uniform Crime Records, International Association of Chiefs of Police, giving the essential facts to be included in the report, and their classification. Tables, charts, forms, and definitions are given, calculated to make the report into a practical document for various uses. The Committee's interest is in the police records, results of which are shown in the chief's annual report. Tentative draft, 1928. (Apply to the Committee, 261 Broadway, New York.)

Growing New Forests.—A 24-page booklet issued by the St. Paul and Tacoma Lumber Co., Tacoma, Wash., describing the interesting reforestation of the Douglas fir country of the Pacific Northwest. Illustrated. (Apply to the company.)

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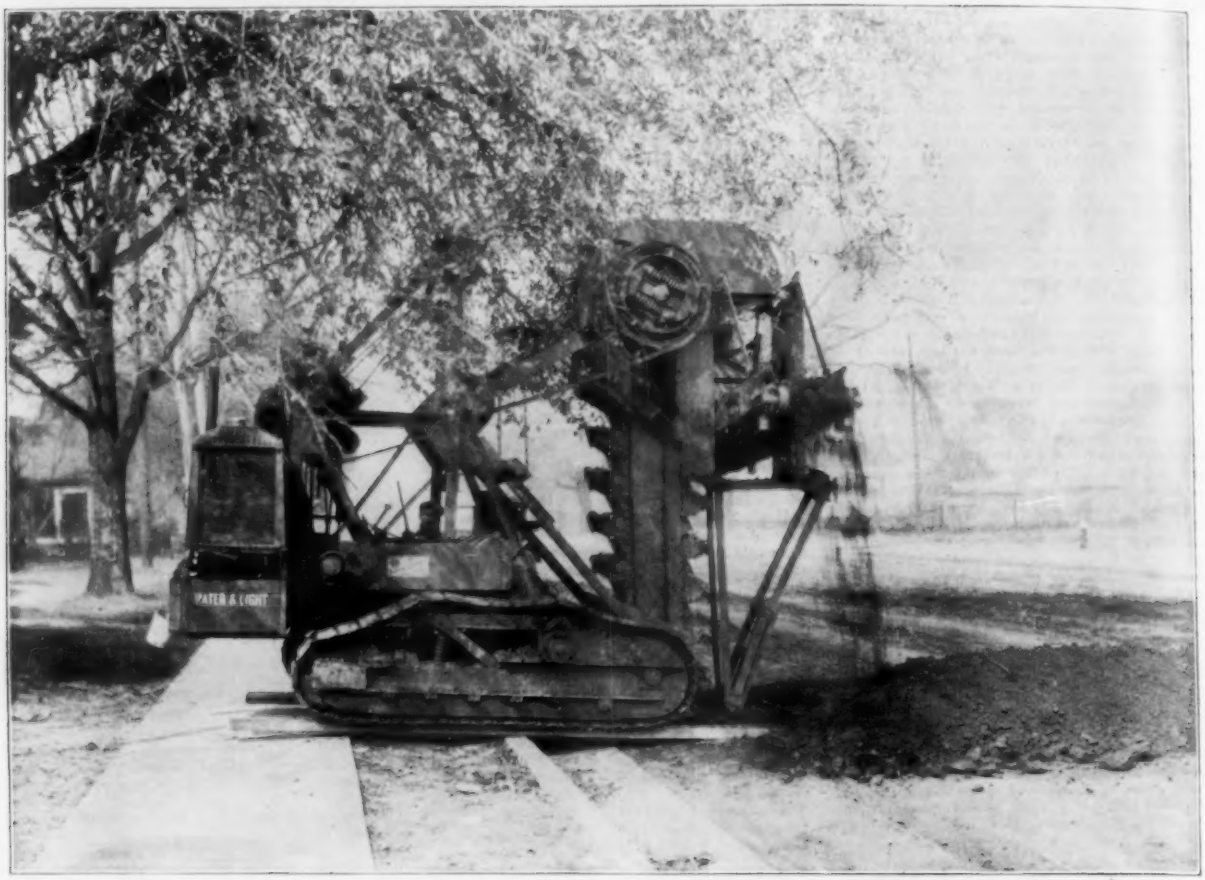

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Annual Short School, Texas Association of Sanitarians.—Complete proceedings of the 1928 Short School (San Antonio) in a volume of 188 pages, paper-bound, fall into seven sections, with numerous important papers and discussions on Health Education Problems, Some Important Communicable Disease Problems, Food and Drugs, Water Sanitation, Sewage Disposal, etc. Miscellaneous material appended includes a proposed model plumbing code for Texas municipalities. A paper on the code and its relation to public health was given by R. G. Thomas, member, Board of Directors, Associated Master Plumbers of the U. S. $1 net. (Apply to Secretary of the Association, E. G. Eggert, Capitol Station, Austin, Texas.)

Bibliography, Street and Highway Safety.—A multigraphed publication of 400 pages prepared for the Committee on Causes and Prevention of Highway Accidents, Highway Research Board, by the Bureau of Public Roads. Containing a comprehensive, detailed, well-classified reference list of articles in periodical publications; pamphlets; conference reports, etc., on street and highway safety and allied subjects. It brings together an invaluable mass of material hitherto uncatalogued for general reference. Limited edition available. (Apply to Highway Education Board, Architects Building, Washington, D. C.)

A Wet Blanket on the County Manager Plan. Improving County Government in North Carolina.—Two articles, the first by Kirk H. Porter, the second by Paul W. Wager, in the *National Municipal Review*, January, 1929. Mr. Porter considers the manager plan for counties and expresses his views of its undesirability; Mr. Wager tells how centralized administration in one county during its first year wiped out deficit, reduced tax rate, and simplified the government. 12 pp. together. 50c. (Apply to the publication, 261 Broadway, New York.)

Miscellaneous Papers on Sewage Chlorination.—A 7-page reprint from the Proceedings of the 13th Annual Meeting of the New Jersey Sewage Works Association, containing papers on color reaction in testing for free chlorine in sewage, by C. M. Nichols, of the New Jersey Department of Health, odor investigation at the Haddonfield sewage plant, by C. W. Sparmaker and Leroy Forman, and odor control by the use of chlorine, by William J. O'Connell, Jr., together with discussions. (Apply to J. R. Downs, Secretary, Boundbrook, N. J.)

Fundamentals of the Smoke Nuisance.—Prepared for Fuel-Power-Transportation Educational Foundation, by Samuel S. Wyer, consulting engineer, Columbus, Ohio. A 24-page study, with bibliography and numerous cartoons, setting forth the salient features of the Mellon Institute smoke abatement investigations, urging smoke control and emphasizing the fact that the solution of the problem does not depend upon any particular fuel or device. (Apply to the Foundation, 1014 Hartman Bldg., Columbus, Ohio.)

Functions of the Architect.—Document No. 186 of the American Institute of Architects is a 4-page circular issued for the purpose of supplying information to those outside the profession of architecture who are interested in building. "The Duties of the Architect and the Owner," "The Reasons for Employing an Architect," "The Architect's Charges and the Cost of the Work," and "The Selection of an Architect," are matters of discussion, as are the responsibilities of the owner to build for beauty as well as utility. (Apply to the Institute, Octagon Bldg., Washington, D. C.)

National, State, and Local Cooperation in Food and Drug Control.—An 18-page discussion of the developments to date in this subject, written by Milton Conover, Yale University, appears in the November, 1928, issue of the *American Political Science Review*. Historical backgrounds, and legislative and administrative activities with citations to existing state laws, are given, and the case for uniformity in state legislation is presented. $1. (Apply to the publication, Menasha, Wis.)

Serving the Child in Fargo.—Bulletin No. 9 (November, 1928), of the Child Health Demonstration Committee, published by the Commonwealth Fund Division of Publications, 578 Madison Ave., New York, under above title, is Part Three of the Final Report of the Fargo, N. Dak., demonstration. It consists of a description and technical discussion of child health procedure as sponsored by the demonstration. 127 pp. Illustrated. (Address the Division.)

The Regional Planning Commission, Los Angeles Country, Calif.—A 34-page 8 x 11 brochure, dated January, 1929, setting forth the ideals and essentials of the master plan and describing the progress made in some of its divisions. Maps, charts, and diagrams. (Apply to Charles H. Diggs, Director of the Commission, Hall of Records, Los Angeles, Calif.)

Other Reports Received

Cook County, Ill.—Annual Message, President Board of County Commissioners, 1928. 50 pp.

Irvington, N. J.—Annual Report of Municipal Accounts. 1927. 94 pp.

Los Angeles, Calif.—Financial Statement, Bureau of Power and Light, to June 30, 1928. 24 pp.

New Orleans, La.—Annual Report, Board of Port Commissioners, as of August 31, 1928. 56 pp.

Richmond, Va.—Annual Report, Department of Public Works, 1927. 198 pp.

Wilmington, Del.—Annual Report, Board of Water Commissioners. 1927-1928. 60 pp.

Wyoming,—Prospectus, natural and industrial resources, State Department of Commerce and Industry. 32 pp.

CONVENTIONS—WHEN AND WHERE

February 12-14.—Detroit, Mich.
American Concrete Institute. Annual convention. Secretary, Harvey Whipple, 2970 West Grand Boulevard, Detroit, Mich.

February 13-15.—Atlantic City, N. J.
New Jersey Mosquito Extermination Association. Annual meeting. Secretary, Thomas J. Headlee, State Experiment Station, New Brunswick, N. J.

February 13-15.—Atlantic City, N. J.
Association of Highway Officials of North Atlantic States. Annual convention. Secretary-Treasurer, A. Lee Grover, State Highway Commission of New Jersey, Trenton, N. J.

February 13-15.—Lawrence, Kans.
Kansas Water Works Association. Annual meeting. Secretary-Treasurer, Prof. E. A. Boyce, State Board of Health, Lawrence, Kans.

February 13-15.—Washington, D. C.
National Paving Brick Manufacturers Association. Annual meeting. Secretary, Q. A. Campbell, National Press Building, Washington, D. C.

February 14-16.—Detroit, Mich.
American Concrete Pipe Association. Annual convention. Secretary, M. W. Loving, 33 West Grand Avenue, Chicago, Ill.

February 18, Week of.—Chicago, Ill.
Associated General Contractors of America. Annual convention. Secretary, Colonel D. H. Sawyer, 1150 Munsey Building, Washington, D. C.

February 19.—Hartford, Conn.
Connecticut Society of Civil Engineers. Annual meeting. Secretary, C. M. Blair, Box 235, New Haven, Conn.

February 19-21.—Harrisburg, Pa.
Pennsylvania State Association of Boroughs. Annual meeting. Secretary, J. Herman Knisely, Harrisburg, Pa.

February 19-22.—Ann Arbor, Mich.
Conference on Highway Engineering. Annual. Address: Prof. John S. Worley, University of Michigan, Ann Arbor, Mich.

February 22-23.—Williamsport, Pa.
Pennsylvania Association of Planning Commissioners. Annual conference. Secretary-Treasurer, Leo J. Buettner, City Hall, Johnstown, Pa.

February 24-28.—Cleveland, Ohio.
National Education Association, Department of Superintendence. Annual meeting. Executive Secretary, Sherwood D. Shankland, 1201 Sixteenth Street, N. W., Washington, D. C.

February 26-27.—Trenton, N. J.
New Jersey State League of Municipalities. Annual convention. Secretary, Sedley H. Phinney, 34 West State Street, Trenton, N. J.

February 26-March 1.—Wichita, Kans.
Southwest Road Show and School. Annual. Manager, F. G. Wieland, Exposition Building, Corner Water and William Streets, Wichita, Kans.

February 27-28.—Indianapolis, Ind.
American Water Works Association, Indiana Section. Annual meeting. Secretary, C. K. Calvert, 1902 North Jersey Street, Indianapolis, Ind.

February 27-28.—Jacksonville, Fla.
American Forestry Association. Annual meeting. Executive Secretary, Ovid M. Butler, 1523 L Street, N. W., Washington, D. C.

February 27-March 1.—Toronto, Ont.
Ontario Good Roads Association. Annual convention. Secretary, S. L. Squire, 98 Albany Avenue, Toronto, Ont.

March 6-8.—Saskatoon, Sask.
Saskatchewan Association of Rural Municipalities. Annual convention. Secretary, J. J. McGurran, Nakomis, Sask.

March 19-23.—Seville, Spain. March 27.—Barcelona, Spain.
International Union of Local Authorities. Fourth International Congress. General Secretary, E. Vinck, Rue de la Regence, Brussels, Belgium.

April 17.—Baton Rouge, La.
Louisiana Chamber of Commerce. Annual meeting. General Manager, Herbert Bayliss, P. O. Box 486, Baton Rouge, La.

May 13-16.—Memphis, Tenn.
National Fire Protection Association. Annual meeting. Managing Director, Franklin H. Wentworth, 60 Batterymarch Street, Boston, Mass.

May 20-23.—Buffalo, N. Y.
National Conference on City Planning. Annual. Secretary, Flavel Shurtleff, 130 E. 22d Street, N. Y.

May 23.—New York.
National Board of Fire Underwriters. Annual meeting. Gen. Mgr., W. E. Mallalieu, 85 John St., New York.

June 24, Week beginning.—Toronto, Ont.
American Water Works Association. Annual convention. Secretary, Beekman C. Little, 29 West 39th Street, New York.

June 24-29.—Boston, Mass.
National Association of Real Estate Boards. Annual convention. Executive Secretary, Herbert U. Nelson, Straus Building, Chicago, Ill.

June 26-July 3.—San Francisco, Calif.
Association of Community Chests and Councils. Annual meeting. Executive Director, Allen T. Burns, Graybar Building, 43d and Lexington Avenue, New York.

June 26-July 3.—San Francisco, Calif.
National Conference of Social Work. Annual conference. General Secretary, Howard R. Knight, 277 East Long Street, Columbus, Ohio.

October 14-16.—Jacksonville, Fla.
International Association of Street Sanitation Officials. Annual convention. Secretary, A. M. Anderson, 100 North La Salle Street, Chicago, Ill.

October 22-25.—Birmingham, Ala.
International Association of Fire Chiefs. Annual convention. Secretary, James J. Mulcahey, Fire Chief, Yonkers, N. Y.

GENERAL MOTORS TRUCKS

Now add "STRAIGHT RATING"

TO *These* ADVANCEMENTS:

1. A COMPLETE LINE OF TRULY MODERN VEHICLES

2. EXTRA VALUE INSTEAD OF "EXCESS ALLOWANCES"

3. A REAL WORK TEST OFFER

A Profitable Step For Every Municipal Department!

THERE should be no need for hedging, when a truck-maker says to a truck buyer: "Here, sir, is a truck that will handle your work with efficiency and economy."

Information should be definite, accurate. Only then can the investment be wisely considered.

* * * *

Hereafter all General Motors Trucks *will be described, and sold, on the exact basis of* STRAIGHT RATINGS *—instead of the customary "capacity" ton figures which are inexact and misleading. For every model the total allowable gross weight, including load, will be given and unqualifiedly guaranteed.*

When the *known* weights of chassis and body job are deducted from that *guaranteed* total, *the maximum pay load at which the truck will operate efficiently* year after year is accurately established.

Actual requirements of work to be done by a truck will thus govern its selection. The buyer will *not* have to buy and maintain *more* "capacity" or *less* than he needs.

Tire-equipment can be exactly suited to the work—effecting a new degree of tire economy in operation.

This step forward is made necessary because of penalties hidden in the old terms: "one ton", "two ton", etc. On the market today are "one ton" trucks with differences in chassis weights as high as 1,500 pounds. In the larger "capacities" still greater variances exist. Between various types of bodies weight-differences of half-a-ton are not uncommon.

* * * *

Every General Motors Truck in the complete line is modern: designed, engineered and built to meet modern conditions with new standards of economy. *Their list prices contain no "water" to permit unsound trade-in allowances.* They provide extra value instead of "excess allowances."

A real Work Test is offered, backing every statement made about any General Motors Truck.

It will pay you, now more than ever, to investigate what General Motors has before you buy.

Make This Real Work Test—

We furnish the truck (any available model, body, or chassis that most closely meets your requirements), the gasoline, and a man to accompany you or your driver. Put them at your regular work for a practical test. (This offer not made in states where such tests are unlawful.)

A TRUCK FOR EVERY PURSE AND PURPOSE

LIGHT DUTY
1929 **PONTIAC**-powered

(STRAIGHT RATING capacities: 3800 to 8000 lbs.)

Type 1001	$ 625.00
Type 2001	1015.00
Type 2002	975.00
Type 2003	895.00
Type 2004	1085.00
Type 2005	1045.00
Type 2006	965.00

MEDIUM AND HEAVIER-DUTY
New **BUICK**-powered

(STRAIGHT RATING capacities: 8000 to 18,000 lbs.)

Type 3001	$1530.00
Type 3002	1505.00
Type 3003	1395.00
Type 3004	1570.00
Type 3005	1545.00
Type 3006	1435.00
Type 3007	1620.00
Type 3008	1595.00
Type 3009	1485.00
Type 4001	1885.00
Type 4002	1790.00
Type 4003	1685.00
Type 4004	1920.00
Type 4005	1325.00
Type 4006	1720.00
Type 4007	1935.00
Type 4008	1840.00
Type 4009	1735.00
Type 4010	1960.00
Type 4011	1855.00
Type 4012	1750.00
Type 5001	3215.00
Type 5002	3160.00
Type 5003	2400.00
Type 5004	3265.00
Type 5005	3210.00
Type 5006	2850.00
Type 5007	3280.00
Type 5008	3225.00
Type 5009	2865.00
Type 5010	3315.00
Type 5011	3260.00
Type 5012	2900.00

HEAVIEST DUTY
BIG BRUTE-powered

(STRAIGHT RATING capacities: 28,000 lbs.)

Type 6001	$4270.00
Type 6002	4350.00

Above prices, chassis only, F. O. B. Pontiac, Mich.

GENERAL MOTORS TRUCK COMPANY
Pontiac, Michigan

Factory branches, distributors, dealers, in 1500 principal cities and towns

A TRUCK FOR EVERY PURSE AND PURPOSE

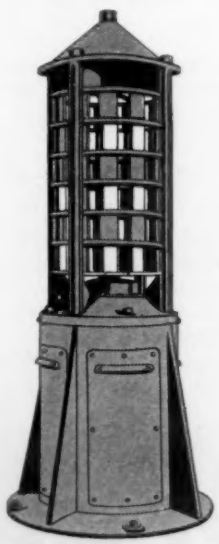
NEWS AND ILLUSTRATIONS

Items of Interest to City, Town and County Officials, and Others Concerned with the Economical Construction and Efficient Operation of Public Improvement Undertakings

A New Fire-Alarm Signal Device

In every municipality having a volunteer or part paid fire department, there should be some means of notifying the members of the existence and location of a fire. The public alarm which simply notifies the firemen of the existence of the fire without pointing out its location is obsolete in modern fire department equipment. Today fire-fighting apparatus is motorized and many members of volunteer departments are equipped with automobiles. When a fire occurs, it is only necessary for a few men to go to the firehouse, enough to man the apparatus; the remainder can respond directly to the fire in their own machines.

A new device known as the Codewell has been designed by the Gamewell Company, Newton Upper Falls, Mass., for this purpose. It locates as well as gives the alarm. The Codewell has many advantages that are not available in a siren. First of all, it sounds a short, sharp, distinct code signal with a clear distinction between digits, numbers and rounds of the signal. It is built vertically to increase the carrying power of the sound, for, according to U. S. Government tests, sound is louder and travels farther at right angles to the shaft than parallel to it. The Codewell is non-directional, giving forth sound equally in all directions. There are no shields or weather-hoods to cut off the sound. It is thoroughly waterproofed by means of a special covering which does not interfere with the sound, and it operates equally well in winter and in summer. The cover also excludes leaves and other foreign matter and prevents birds and insects from nesting in the mechanism.



THE NEW GAMEWELL CODEWELL FIRE-ALARM SIGNAL

The coding feature is accomplished not by mechanical brakes or reversing of the current but by raising and lowering the sound-producing rotors, which normally are out of the stator field. The motor runs continuously while the coding is being accomplished, and as the rotors rotate they are raised into the stator field as the signal demands, and after each blast they are lowered. The raising and lowering is accomplished by means of a method somewhat similar to the bendix drive, and the rotors are cushioned by air and oil as they lift and drop back into place.

The sectional feature of the Codewell is an important one where the community is growing, which is the case with the majority of the communities throughout the country. It can be increased in size from 2-, 3-, to 5-horsepower so that it can take care of the requirements of any community for a number of years without its being necessary to discard all of the original investment. The Codewell can be operated automatically from a street signal station, automatically by means of a transmitter located in the fire-station or telephone exchange, or manually by pressing the test button on the control unit.

A Serviceable Motor Coach for City Service

The de luxe motor coach service recently inaugurated in Detroit is proving an unqualified success in helping solve the transportation problems of the motor metropolis, according to officials of the Department of Street Railways.

Soon after the middle of November the first of the new lines began operating, and others have been added since on routes that parallel the street railways, supplementing the city's other bus lines and street cars. Although it is an entirely new class of service for the Detroit bus-riding public, the de luxe coach has been quickly accepted and has definitely established a place for itself in the transportation requirements of the large city.

The Graham Brothers 16-passenger parlor coach, made by Dodge Brothers Corporation, is being used. A fleet of 120 was purchased by the city from the company, after the Department had operated Graham coaches more than 24,500,000 miles over Detroit streets.

Two of the main lines, in Woodward and Grand River Avenues, are operated over part of the routes on parallel streets to reduce traffic congestion in these streets and give speedier service. The adaptability of this coach to traffic conditions demanding quick acceleration and speed, with braking facilities of the passenger car, has assisted materially in transporting Detroit's half-million workers and is meeting all the requirements of the abnormal rush-hour traffic, according to officials of the railways department.

THE NEW DODGE BROTHERS MOTOR COACH

In addition to giving a fast service, other features of the motor coach include added refinements in comfortable transportation, passengers being seated in deep, leather air-cushion, individual wicker chairs. The coach is roomy, and ample space is provided between the seats and in the aisles. It rides easily, as the weight is well distributed between the front and rear wheels. There is an emergency door at the rear and a non-skid entrance step to increase the safety of the coach.

In place of the customary cream and green combination previously used by the Street Railways Department for street cars and busses, the de luxe coach has a maroon body with beige top set off by black and gold stripes and chromium-plated metal parts. It is 20 feet 6 inches long, 6 feet, 5 inches wide, and is powered by a 6-cylinder, 60-horsepower motor with 4-speed transmission.

A New Threadless Coupling for Fire-Hose

A threadless coupling which has been in the development stage for ten years, has been brought out by the Interstate Coupling Co., 126 Pershing Avenue, Carteret, N. J. This coupling overcomes any differences in threads which have not been standardized in neighboring communities. The coupling is made of tough bronze construction and is guaranteed to stand the severest use. In operation, it is only necessary to throw back the lever, plug in the coupling, and throw down the lever, to secure a high-pressure connection. The connection is made without the use of spanners, hammering or the forcing of the couplings, and this coupling eliminates such common faults as a bad first thread or cross-threads, damaged and bent couplings and stuck swivels.

The *right* Tires for *City* work

Goodyear specializes in the manufacture of truck tires particularly designed for municipal duty.

For road and street maintenance, street sprinkling, etc., there is no tire to equal the Goodyear Heavy Duty Cushion. It has powerful All-Weather Tread traction, enormous structural strength, and gives unusual mileage.

Fire Department service calls for the hardy, reliable qualities built into this Goodyear Heavy Duty Cushion, or, if pneumatic equipment is used, the tested and matchless Goodyear Pneumatic Cord, with its world-famous All-Weather Tread grip for safety and traction and its active, dependable body of extra-elastic, extra-durable SUPERTWIST Cord.

Educational department work, inspection, and similar lighter travel, are economically and dependably served by Goodyear All-Weather Tread Tires.

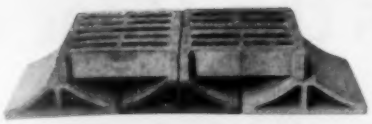
The Goodyear plain tread trailer tire, high in profile and extra resilient in cushioning, is recommended for garbage hauling.

Call on Goodyear for expert technical recommendations on the *right* truck tire for your hauling. Goodyear Truck Tire Service Stations everywhere give prompt, competent and helpful service.

More Tons Are Hauled on Goodyears Than on Any Other Tires

GOODYEAR

Copyright 1929, by The Goodyear Tire & Rubber Co., Inc.



THE METRO FLOOR SYSTEM, SHOWING PROVISION FOR VENTILATION AND CLEANING

A Vitrified Floor System for Trickling Filters

A false floor that is ample for the load to be placed upon it and is known as the Metro vitrified floor system for trickling filters has been developed by the Metropolitan Paving Brick Co., Canton, Ohio. The possibility of clogging the drains with solids unloaded by the filter or by organic growths is negligible because of ample provision for flushing. The size and shape of the lateral drains are sufficient to carry away the effluent promptly, making flushing possible and affording plenty of space for air circulation.

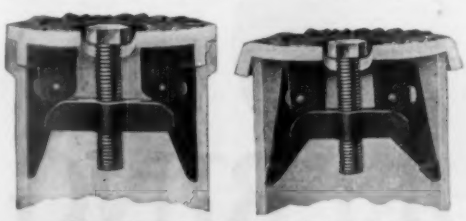
The construction of this system is simple, consisting of vitrified clay pier and grill blocks. A concrete slab is first laid and then the pier blocks are laid to an even grade and true alignment in a thin bed of mortar with all end and bottom joints carefully pointed and all excess mortar removed. No mortar is used for placing the cover blocks.

The construction of this system is rapid, accurate and low in cost. All underdrains need cleaning during construction to remove fine particles of filter stone which find their way into the drains. This is a simple operation with the Metro vitrified flooring system.

A Repair Lid for Service Boxes

Realizing that the regular lid which is supplied with the Buffalo type water service box may easily be lost or broken soon after being placed in service, the Mueller Co., Decatur, Ill., has designed the Mueller repair lid, which will be particularly appreciated by water-works officials during the winter months. Frequently during the winter a water department receives a hurry-up telephone call to shut off the water in a certain house. The cause is usually a burst water service pipe that has been frozen. When the water department answers the call, it frequently finds that the lid on the Buffalo type box is no longer to be found and the inside of the service box is filled with dirt, rocks, broken bottles, etc. In such cases the only way to turn off the water is to begin digging in the frozen earth so that the service box may be removed from the top of the curb stop, and after the box has been removed, it is possible to turn off the water.

In cases such as this the water department may quickly put in place a Mueller repair lid on the box. Progressive water departments are now supplied with a Mueller clean-out auger or spoon which they can use instead of having to take up the entire service box in order to be able to turn off the water at the curb. After the box has been cleaned out, a water repair lid can be placed on top. This lid does not become broken or lost, because of the lugs, which have a large bearing surface on the shaft of the box. The lid for the new style box fits inside the shaft, while on the old style it fits over the outside. The Mueller service box repair lid provides a means of supplying a lid to any box, regardless of the condition of the box top. It is easy to attach the lid, being necessary only to use the regular pentagon head key. It is practically impossible to pry off the lid, as it does not depend on a point contact for friction, but has the full length bearing of the two legs with the box shaft, this bearing surface being approximately 2½ inches in length.



SERVICE BOX REPAIR LIDS FOR NEW AND OLD STYLE SERVICE BOXES

An Effective Fire Pumper

A pumper which has a capacity of 500 gallons of water per minute and has successfully passed the 12-hour test of the National Board of Fire Underwriters at this capacity, has been developed by the General Manufacturing Co., 4127 Forest Park Boulevard, St. Louis, Mo. The pump is capable of increasing the pressure of, say, 50 pounds at the hydrant up to 300 pounds at the discharge if so desired.

The pump on this truck is also capable of drawing water from a cistern or pond and can raise the water approximately 25 feet. The truck is equipped with a booster tank, as these are replacing chemical tanks on practically all fire-trucks being built today, according to the manufacturers.

The General Manufacturing Co. uses a "pig tail" hook-up on the suction hose. By using this arrangement, it is possible to connect the pump to the hydrant by making only one connection, which eliminates a great deal of wasted time, whereas if a short hose is used for the suction hose, it is necessary to connect it to the pump and also to the hydrant. With this hook-up one end is always connected by an elbow to the suction base of the pump.

The body of the fire-truck carries 1,200 feet of hose, and it is equipped with ladders, extinguishers and accessories, including crowbars and all minor equipment.

A Medium-Weight Heater for Asphalt Tank Cars

The heating of tank cars has always presented more or less of a problem to municipalities or contractors purchasing asphalt in bulk. The problem is increased or lessened depending on the kind of equipment used, the method of transporting the equipment and the necessary water and fuel supply, to say nothing of the time required to reduce the material to pumping consistency.

A light-weight heating system arranged for easy and speedy transportation has been developed by E. D. Etnyre & Co., Inc., Oregon, Ill. The tank car heater is the invention of J. C. Cleaver of Oregon, Ill., who for a long time has been closely associated with E. D. Etnyre & Co.

When mounted on a two-wheeled rubber-tired trailer for transportation behind a truck or automobile, the total weight of the heater is less than 1,200 pounds. It can be set up and hooked up to the tank car by one man in 15 minutes. The heater is of the steam-generating type consisting of double boilers, and operates on a closed circuit. Heat is supplied by two oil burners of the generating type, which are furnished with the heater. It is claimed that in 30 minutes from the time the heater arrives at a tank car, it can be operating with 125 pounds of steam in the coil. The inventor claims that on a recent test 10,000 gallons of 150 penetration asphalt in a tank car equipped with double steam coils was reduced from the solid state to pumping consistency in 7 hours with one of these heaters, using 32 gallons of kerosene and 25 gallons of water in the boilers.

A GENERAL MANUFACTURING CO. FIRE-TRUCK IN SERVICE AT REMINGTON, IND.

The Power that Builds the Roads

RIBBONS of good roads are unrolling over the land. Each season a great new mileage of highways criss-crosses the map of the 48 states. Easy as child's play when viewed from an airplane—but tough toil and engineering for the army of road builders on the ground. A job for he-men, up-to-the-minute equipment, and dependable power.

From Vancouver and the mountain roads down to the end of the Dixie at Miami the power built by International Harvester is the power behind the road builder. The famous radiator of the McCormick-Deering Industrial Tractor looks out from every type of highway equipment. McCormick-Deering is the standard . . . Standard in road building . . . Standard throughout general industry!

Any of the 170 International-owned branches in the United States and Canada will demonstrate McCormick-Deering Industrial Tractors at your convenience.

INTERNATIONAL HARVESTER COMPANY
of America
(Incorporated)
606 So. Michigan Ave. Chicago, Illinois

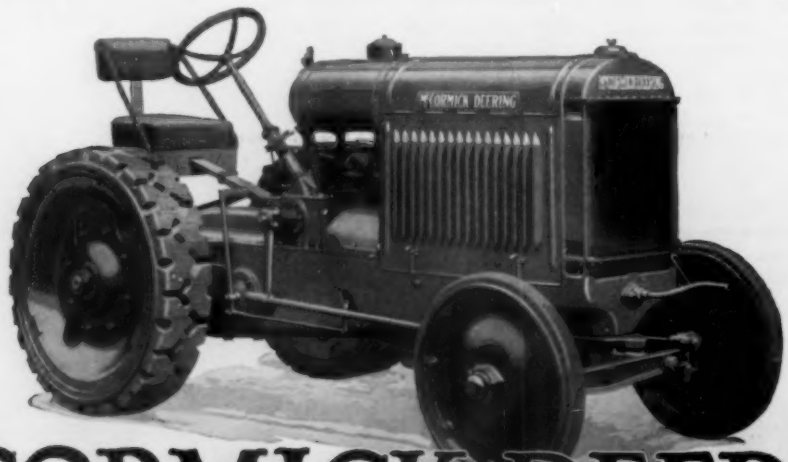
The "tractor-dump" idea in fast dirt moving is sweeping the country. Of the above combination alone there are now scores of fleets and hundreds of single units. The State of California, by the way, owns 45 like these.

The City of New York now owns over 100 McCormick-Deering Industrial Tractors. Here are 2 with cross-walk plows. In New York, as everywhere else, the McCormick-Deering power goes three ways, through drawbar, belt, and power take-off.

Showing a crawler adaptation. There seems to be no limit to the practical utility of the McCormick-Deering, whether it's in road building or in general industry. Here one man handles the tractor and a train of highly useful scoops. Information on any industrial tractor job and details on special equipment furnished on request.

A typical motored-grader scene. The heart of it is McCormick-Deering power. Many thousands of McCormick-Deerings build roads for county and state authorities, working in every state in the union. Among the State Highway Commissions owning into the hundreds are California, Texas, Louisiana, Iowa, and Missouri. All-around merit is the answer.

This trim outfit is typical of hundreds of municipally-owned McCormick-Deerings. They build, keep up, and flush the streets, remove snow, set poles, dig trenches and excavations, load and unload, etc. In some of the installations you can't readily see the power plant, but it's there. Liberal power for a hundred-and-one jobs.



McCORMICK-DEERING

A MODEL 40 CLETRAC EQUIPPED WITH THE NEW WALSH SNOW-PLOW HAVING A HYDRAULIC LIFTING AND LOWERING DEVICE

A New Scarifier for a 10-Ton Gasoline Roller

A new scarifier has been designed by the Huber Manufacturing Co., Marion, Ohio, for the 10-ton Huber gasoline roller. The features of this scarifier are that the cylinder is located underneath the deck of the roller, where it is out of the way, and the pressure is applied to the scarifier bar through bell arms and levers, to multiply the cylinder pressure as it is transmitted to the tooth bar. The tooth bar is a solid steel casting with gage wheels at the ends to regulate and control the depth of the cut.

The teeth are quickly detachable and can be replaced or reversed in a few moments. They are held in place by a spring plunger, and it is only necessary to compress the spring to release the teeth. While the tooth bar rises in the rear of the deck to give a high tooth clearance, the bar is held close to the rear roll, a decided advantage, especially when rough or uneven surfaces are being scarified.

A New Truck Body for Ready-Mixed Concrete

There is probably no one thing in the construction industry to-day that is attracting the attention of as many people and being investigated as thoroughly as the problem of delivering concrete to the job on which it is to be used ready to pour into the forms, or, in other words, ready-mixed concrete.

The new ready-mixed concrete body developed by the C. O. Bartlett & Snow Co., 6200 Harvard Avenue, Cleveland, Ohio, is made with its two sides movable. That is, when concrete is being transported, the side plates are V-shaped, and upon arrival at the job, the plates are wound to a horizontal position. This action corrects any segregation in the concrete that may have occurred during the journey. No mechanical agitation of any kind is used to condition the wet mix before unloading.

The body is then tilted and the mix is again churned as it passes through the end gate. The concrete which pours from the tail piece is said to be as plastic and workable as when it left the mixer. There are no mechanical baffles or obstructions of any kind inside the Bartlett-Snow body. This feature makes it suitable for the additional duty of general hauling. With the sides in a vertical position, it forms an ordinary rectangular end - dump body in which sand, gravel and other materials may be carried.

This body performs the function of correcting any segregation in the concrete, and tests taken at wide intervals have shown that the concrete delivered in the body up to the time limit set by cost is in every respect equal to that delivered by the mixer at the central plant, according to the manufacturers.

THE NEW BARTLETT-SNOW MIXED-CONCRETE BODY

The C. O. Bartlett & Snow Co. states that this body costs less than any similar purpose body offered to-day, it fits any truck, it has no revolving parts to wear, it requires only one minute to correct segregation and dump the load upon arrival at the job, only a few seconds are required to load, meaning the maximum number of hauls, and it weighs less than other similar bodies.

Jack O'Leary Made General Sales Manager

The Pittsburgh-Des Moines Steel Co., Pittsburgh, Pa., has announced the appointment of J. E. O'Leary, who has been in charge of sales at the New York offices since its opening in 1914, as General Sales Manager of the company. Mr. O'Leary will make his headquarters at the home office of the company in Pittsburgh.

H. W. Ford succeeds Mr. O'Leary as Manager of the New York office.

G. A. Smith has been appointed to direct construction and erection activities.

W. E. R. Moore, formerly with the American Locomotive Co., has been appointed Export Manager. The Export Department is located in the New York office, 50 Church street.

International Combustion Tar and Chemical Corporation

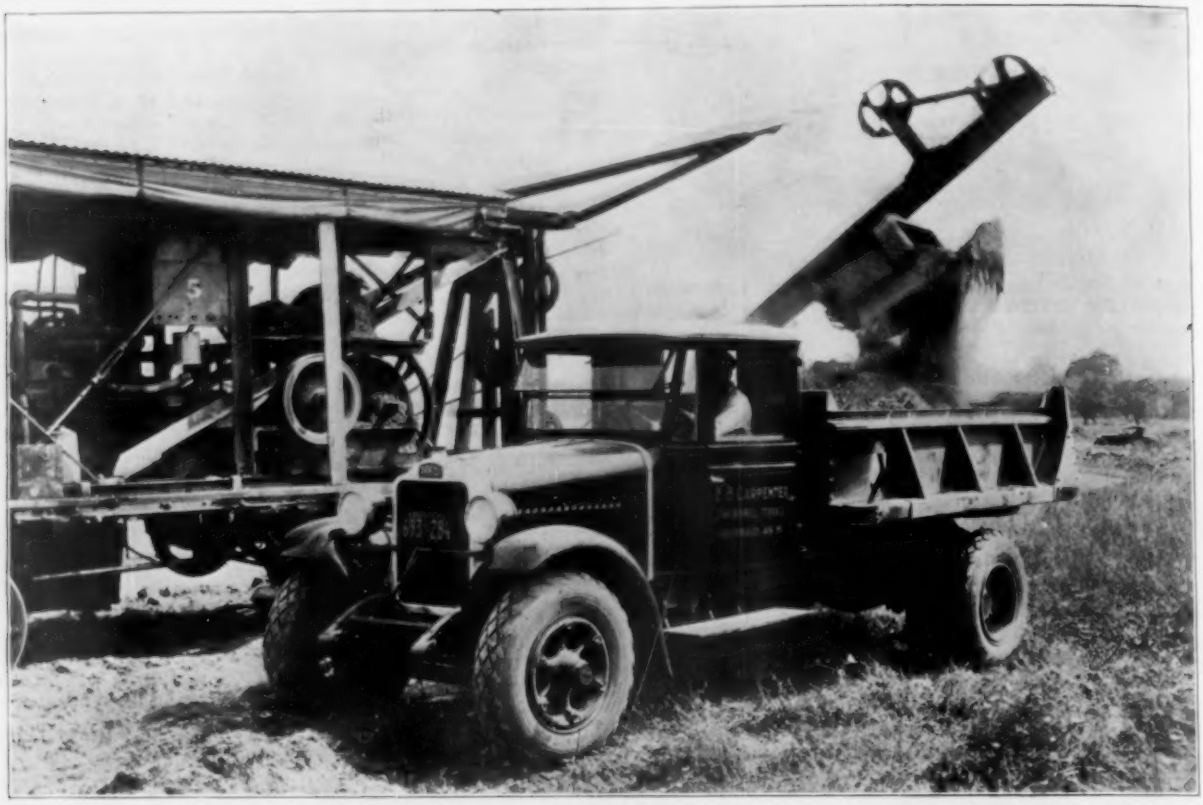
The International Combustion Engineering Corporation, New York, has announced that its subsidiary, the F. J. Lewis Manufacturing Co., producers of coal tar products since 1887, will henceforth be known as the International Combustion Tar & Chemical Corporation, with offices at 200 Madison Avenue, New York, and 2500 South Robey Street, Chicago, Ill. The complete line of coal tar products to be produced by this company, includes creosote oil, road tar, and roofing materials, which will be sold under a brand name, IN-CE-CO. The company's six plants are located at Newark, N. J., Fairmont, W. Va., Dover, Ohio, Chattanooga, Tenn., Granite City, Ill., and Chicago, Ill., with a new plant shortly to be placed in operation, in New Brunswick, N. J.

New Liquid Chlorine Plant

The new plant of the Hooker Electrochemical Co., 25 Pine Street, New York, located at Tacoma, Wash., started operation on February 1. This is one of the largest chemical plants in the West. The process of manufacture is based upon the Townsend cell, in which electric current is passed through a brine solution made from common salt, thereby breaking up the salt into its two elements, sodium and chlorine. The patents covering the Townsend cell are owned both in the United States and abroad by the company and are operated on large scale at Niagara Falls and in Japan.

The plant has an initial capacity of 30 tons of 76 per cent caustic soda per day and 26 tons of cell chlorine. Liquid chlorine is slipped in containers varying in size from 100 pounds to 60,000 pounds. The smaller containers, which are known as cylinders, are of two standard sizes, one containing 100 pounds net and the other 150 pounds net.

ARCHITECT'S SKETCH OF THE NEW CHLORINE PLANT OF THE HOOKER ELECTROCHEMICAL CO. AT TACOMA, WASH.



Model 58, high speed, heavy duty White Truck especially adapted to road building and construction work. It is built to carry a large pay load even in states having low gross weight restrictions.

Performance With Profit in Road Building

ROAD builders know their motor trucks. They know their stamina, their economy, their records in actual performance. That is why White Trucks predominate on the most important road building jobs everywhere. There is a complete line of Whites—a truck to meet every transportation requirement.

White Trucks always have been money-makers, both in building highways and in transporting goods over them. Road contractors and highway departments of states, counties and townships using thousands of motor trucks have expressed a decided preference for Whites because of their superior performance records. These records prove White Trucks are perfectly adapted to the severe requirements imposed by this kind of work.

More than 6,000 Whites are working efficiently and dependably in road construction and maintenance with proven economy of public money.

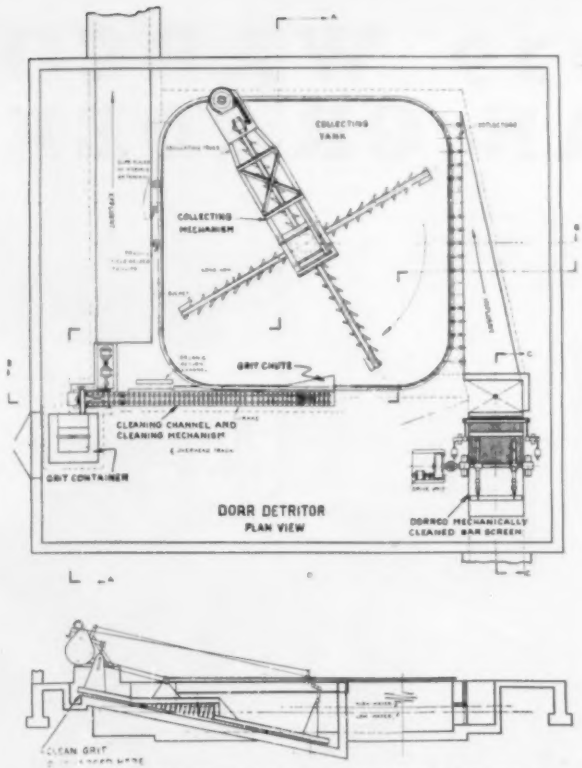
The rugged construction, lower chassis weight and superior economy of Whites meet the severest operating conditions. You can put White Trucks on any road job and make more profit on that job. Whites will do more work, in less time, at a lower operating cost because they are engineered for that purpose.

THE WHITE COMPANY—*Cleveland*

DEPENDABLE AND ECONOMICAL PERFORMANCE HAS BUILT WHITE TRUCK LEADERSHIP

WHITE TRUCKS

AND WHITE BUSSES



A PLAN AND SECTION OF THE NEW DORR DETRITOR

An Automatic Mechanically Cleaned Grit Chamber for Sewage Treatment Plants

For general use in place of the conventional grit settling trough at sewage disposal plants, the Dorr Company, 247 Park Avenue, New York, has developed an automatic self-cleaning grit chamber, known as the Dorr Detritor. This machine is said to perform all the functions of the grit settling channel and in addition automatically collects and washes the grit, delivering it finally in a clean, dewatered condition to a suitable receptacle.

The Detritor is located directly after the bar screen and consists of a grit collecting tank, a collecting mechanism, a grit cleaning channel and a cleaning mechanism. The collecting tank is square and shallow, the sewage entering along one side and being straightened out in parallel lines by a series of adjustable guide frames or deflectors equally spaced along the inflowing side. The purpose of the collecting tank is to reduce the velocity of the incoming sewage to such an extent that practically all the particles of grit of a predetermined size may settle out within the bounds of the tank. The sewage flows out of the tank across a weir which extends along the effluent side.

The collecting mechanism, a modification of the Dorr Traction Clarifier, consists of a combination of radial arms fitted with plow blades and an oscillating truss to which plow blades are attached. The radial arms sweep the area of the bottom bounded by a circle inscribed within the square tank, while the oscillating truss sweeps, in addition, the corners of the tank which are not reached by the radial arms. The plow blades move the grit outward toward the tank sides, where it is picked up by the buckets on the end of the radial arms and deposited in the grit chute.

The chute discharges the grit into the narrow rectangular inclined cleaning channel, which extends from a point well below the water-level at its lower end to a point above water and adjacent to the grit container at its upper end. The cleaning mechanism has a reciprocating motion, the rakes just clearing the inclined bottom and not only advancing the grit toward the point of discharge, but also imparting to it a turning-over motion which releases entrained organic matter. This released organic matter is kept in suspension by the gentle selective agitation of the cleaning mechanism and flows back into the collecting tank through an organic return channel in the dividing wall.

The washed grit is drained into the water section of the inclined channel and discharged into a grit container in a dewatered, odorless condition. An extended test period of the Dorr Detritor showed that the greater part of the grit of almost any fineness could be removed and delivered to the containers with a putrescible organic content never exceeding 10 per cent and averaging not over 5 per cent over a period of several months.

Fire Department Accessories

There are many small pieces of equipment which prove most helpful in increasing the efficiency of fire fighters. The P-B Manufacturing Co., Inc., 4567 Swan Avenue, St. Louis, Mo., has developed several which are of particular value.

The P-B Rite-A-Way flare signals for attaching to fire apparatus are most effective in making positive identification of fire apparatus at a long distance possible. This equipment consists of two flashing beacons which are installed back of the driver's seat and flash alternately. There is no drain on the battery in operating these flares, as they are worked directly from the intake manifold. They help to prevent accidents, delays and loss of life, they prevent the destruction of property, they enable the apparatus to arrive quickly, they clear traffic and identify the apparatus immediately. There is no adjustment necessary to the carburetor to operate the flare, there is no loss in the power of the engine, no increase in gas consumption, no attention required, and practically no upkeep expense.

Fire equipment is frequently called out to pump out cellars after breaks in watermains or flooding due to heavy storms. The M & M syphon has been developed as an inexpensive piece of equipment to eliminate the use of expensive fire pumpers for pumping dirty waste water, which may damage the machines. The syphon is operated by water.

THE M & M SYPHON FOR UNWATERING CELLARS

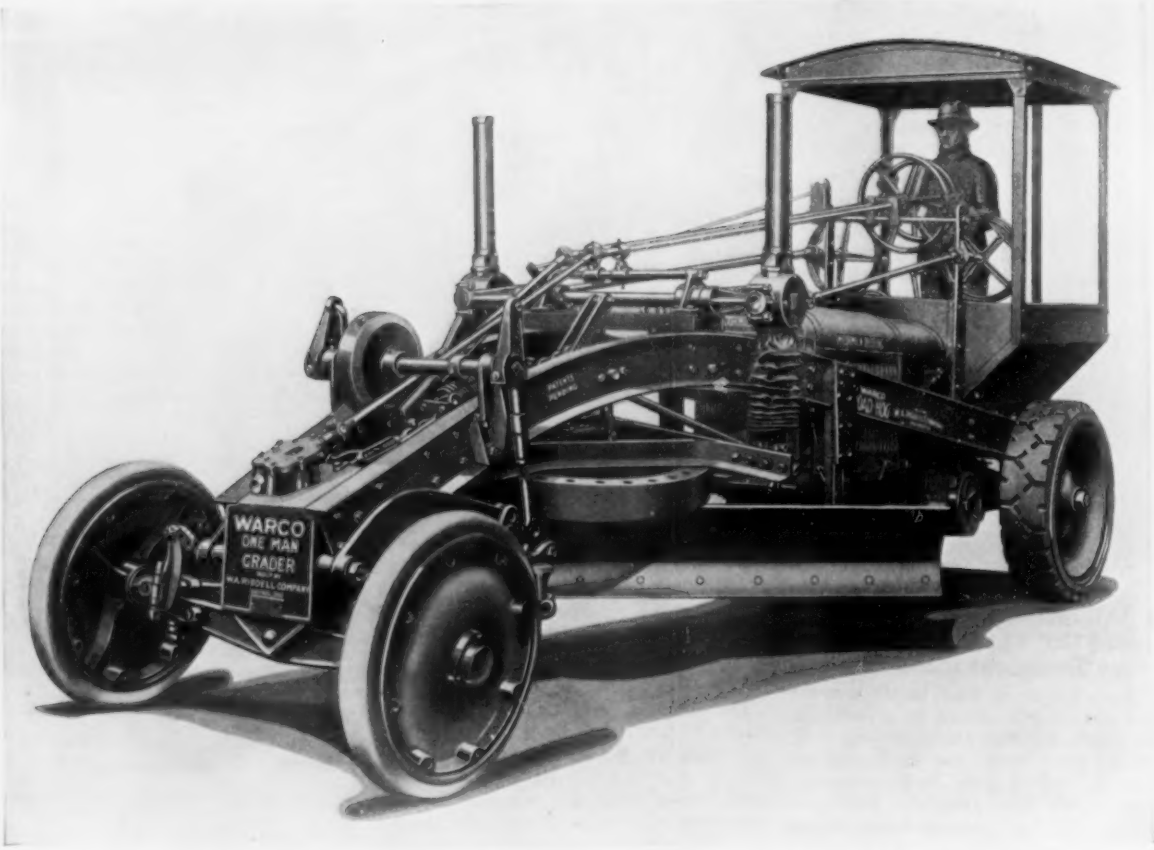
An example of the effectiveness of the M & M syphon is found in the case of an excavation filled with water after a cloudburst in Forest Park, St. Louis, on August 17, 1928. The Fire Department was instructed to take charge after the pumps had failed on the property. The excavation contained 99,000 gallons of water and was 37 feet deep. This water was removed by an M & M syphon in ten hours with a pump pressure of 70 pounds.

Attractive Calendars Available

An attractive 1929 calendar for municipal offices and water-works may be secured by readers of THE AMERICAN CITY by writing direct to the R. D. Cole Manufacturing Co., Newnan, Ga., and mentioning this magazine.

The American Institute of Steel Construction, Inc., 285 Madison Avenue, New York, has issued a small calendar with a painting of the Hudson River Bridge, New York, which is now under construction. The Institute will be pleased to send copies of this calendar to any reader of THE AMERICAN CITY wishing it.

NEW 1929 WARCO ONE MAN GRADER



FAMOUS OVER NIGHT

- - - and justly so

The W. A. Riddell Company's exhibit at the Road Show—the new improved one man Grader—the new rear crawlers—the new 1929 Alwatrac, prompted enthusiastic expressions of commendations on all sides.

This unprecedented reception is a forerunner of the inevitable success of these machines. Their popularity is assured.

The new 1929 Warco one-man Grader with newly designed circle and new screw lift (patent applied for) has many excellent features which place it far ahead of any other Power Grader. Subjected to strenuous tests under every possible condition, the Grader has proved its worth. Six months ago it was ready for production. In order to be able to introduce a new one-man Grader which would be the acme of perfection, the machine has been withheld from the market until its perfection was an absolute certainty.

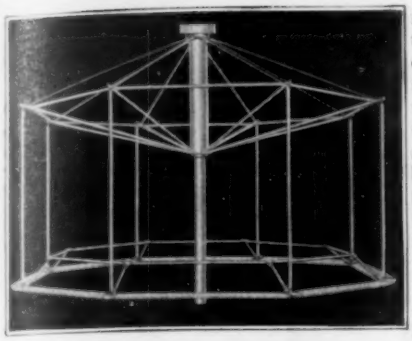
The new 1929 Warco one-man Grader is now under production—it will be available for spring delivery—complete specifications and prices furnished on request.

See us at the Southwest Road Show and School, Witchita, Kansas, Feb. 15th-March 1st, 1929. Space No. 109 and 113.

WARCO PRODUCTS DO THE JOB—EASILY—QUICKLY—EFFICIENTLY

W. A. RIDDELL CO.

Dept. J **BUCYRUS, OHIO**



THE LOUDON WHIRL-A-ROUND FOR PLAYGROUNDS

Playground Equipment Built at Ottawa, Ill.

Louden Playground Equipment, Ottawa, Ill., has announced a very complete all-steel line of playground apparatus, which includes not only the old favorites such as merry-go-rounds, giant strides, slides, swings and seesaws, but various new items of original design as well. The new line is being built by an organization with more than sixty years of successful experience in the building of steel equipment. The principal item of the line is the Louden Giant Whirl-Around, with a capacity for amusing fifty or more youngsters at one time with safety. This feature of equipment is almost a complete playground in itself.

Sleeves for Reinforcing Dowels and Form Bolts

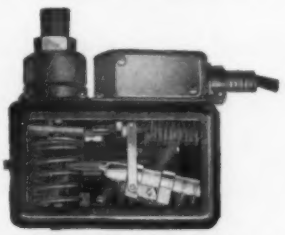
The use of dowels placed through the expansion joints on concrete roads is becoming standard practice in many states. Where proper care is not taken in placing these dowels and providing space for expansion, great damage results from expansion of the dowels. A heavy waterproofed chip board sleeve has been developed by the Cleveland Container Co., 10630 Berea Road, Cleveland, Ohio, which slips snugly over the end of the dowel and is stopped automatically ¾-inch from the end by an inner sleeve which provides ample room for expansion. This dowel sleeve is now standard for state highway construction in New Jersey and is also used by contractors in a number of other states. The sleeves are supplied in any lengths and diameters desired.

As a means of facilitating the removal of concrete form bolts, the Cleveland Container Co. has developed 3-ply paraffined paper tubes which are slipped over the form bolts and from which the bolts are removed when the concrete has set and the nuts have been taken off. The bolts slip out freely, so that they may be used on many more jobs in a similar way. The paper tubes remain in the concrete. The use of these tubes results in a saving in the cost of form bolts and other tieing materials which do not need to be cut flush with the concrete, as the ends of the paper tubes fit flush to the face of the wall and when the form is removed there are no projections. They result in a saving in labor because the form bolts can be removed by one man. The wooden forms are easier to remove, because the paper tubes permit removal of all bolts first and then the forms may be lifted off without interference or damage. These tubes are supplied in any length or diameter, thoroughly coated with paraffine at an average price of about one cent each. Where an extra long bolt is used, two ordinary tubes may be used with a paper sleeve to cover the joint.

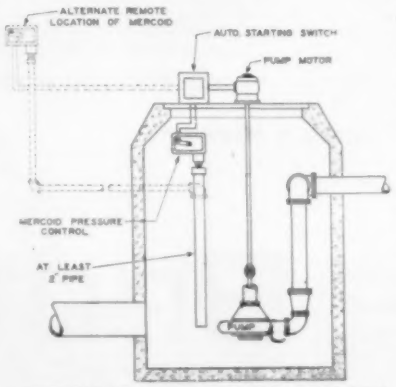
This company also makes a leak-proof paraffined chip board container with an inside diameter of 6 inches and a height of 12 inches for collecting samples of concrete. By the use of these containers, samples can be taken on the job and cured without the loss of any moisture. They may be shipped promptly to a laboratory or readily stored on the job.

Pump Control by Electrically Operated Pressure Device

An instrument which automatically makes and breaks an electric circuit according to changes in pressure, has been developed by the American Radiator Co., Accessories Division, 40 West 40th Street, New York, under the name Mercoid Controls. The outstanding features are a reliable close control and the carrying of full line current in sufficient volume to operate electrical units, but without opportunity for oxidation or corrosion of the contacts. There is no exposed arc. The power element or means for operating the switch are either of the Bellows type or of the Bourdon spring type, whichever is best suited to the particular operating condition.



THE MERCOID CONTROL UNIT

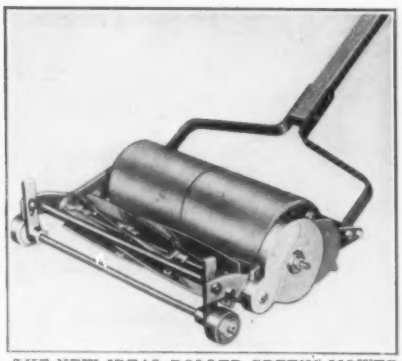


A TYPICAL MERCOID INSTALLATION IN A SEWER MANHOLE

The number 848 Mercoid Control, Models A and B are particularly designed for pressure control in liquids that will not attack brass. For this reason they are particularly well suited for the control of pumps supplying elevated tanks on water-supply, or at central pumping stations on sewers. The only requirement is that the control must not be placed where it will be affected by the pulsation of the pump. This type of installation eliminates floats and rods, and is not affected by dirt, ice or frost. An aluminum moisture-proof box can be furnished where the control is exposed to the weather. The accompanying illustration shows a Model 848 Mercoid control, and also an installation in a sewage lift station.

A New Roller Greens Mower

After some two years of experimental work and one season's operation in the field, the Ideal Power Lawn Mower Co., Lansing, Mich., has announced a new roller-type putting-green mower which has a number of new features. This mower is light, weighing only 47 pounds and only 54 pounds when equipped completed with grass catcher and deflector. The side frames are of aluminum and the drive rollers are also aluminum castings. The drive rollers are machine-turned to an absolutely true round. The tie rods at both front and rear not only assure alignment, but also relieve all strain and pressure on the side frames.



THE NEW IDEAL ROLLER GREENS MOWER WITH HIGH-SPEED 4-INCH DIAMETER CUTTING REEL

The new Ideal mower is equipped with a very small reel, only 4 inches in diameter, which is geared to turn at a very high speed, producing a smooth cutting job and at the same time lessening cutting resistance. Every moving part is equipped with ball bearings, those on the reel being adjustable to take up end play.

The grass-box is of all-steel construction, rigidly built and designed in combination with the deflector to handle cut grass under all conditions efficiently.

THE DOWEL SLEEVE, SHOWING EXPANSION CHAMBER

DODGE BROTHERS

ANNOUNCE

The complete line of Trucks, Buses and Motor Coaches which Dodge Brothers have been manufacturing and selling under the name of Graham Brothers now take the name of their makers—Dodge Brothers.

These Trucks, Buses and Motor Coaches have always been powered by Dodge Brothers engines. For years they have been built of Dodge Brothers parts in Dodge Brothers plants according to Dodge Brothers standards.

These Trucks, Buses and Motor Coaches are sold, as they always have been sold, by Dodge Brothers Dealers everywhere.

For Power, Speed, Safety, Economy, Fine Appearance and Dependability, Dodge Brothers Trucks, Buses and Motor Coaches will continue to merit that high public regard which impels keen businessmen to buy them at a rate of more than a million dollars' worth a week.

DODGE BROTHERS TRUCKS

BUSES AND MOTOR COACHES

Mention THE AMERICAN CITY—it helps.